SOAP AND SANITARY CHEMICALS

ough going...
hen the going gets tougher and tougher, men must fall back on the st means at their disposal. Ungerer & ompany have helped many manufactur- s with tough perfuming problems in the st and may be able to help you now.
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Since 1895 the name of Chuit, Naef has been synonymous with the production of the highest quality group of synthetic and aromatic chemicals obtainable. Today, as then, this reputation continues unmatched.

Throughout these years the Chuit, Naef organization has expanded its products to the point where they now rank as the most complete line of perfume raw materials available to the toilet goods, perfume extract and soap fields.

The laboratories at Geneva, Switzerland, are constantly *showing the way* in the development of new aromatic materials, basic specialties and finished compositions that aid *you* in solving your perfume problems.

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60 Seconds Make A Minute . . . and . . . 60 Minutes Can MAKE THE DIFFERENCE!

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Every man's goal must be: "Finish today's job yesterday, so that tomorrow's can be done today!"

Fuld Bros.' ceaseless production of the sanitary chemicals so sorely needed in defense plants insures for America the maintenance of superior health standards. Healthy men can work longer . . . faster . . . more efficiently.

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FULD MAKES it for the LEADERS

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Our first and only job now is to win the war. The effort of every American should be directed to that accomplishment. If van Ameringen-Haebler, Inc. can best serve this purpose by the continuation of our normal business, we shall do that to the best of our ability. If we find that we can serve our country better by devoting the facilities of our plants and laboratories to defense production we are ready and eager to do so as quickly as possible.

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Volume XVIII Number 5

SOAP and SANITARY CHEMICALS

Reg. U. S. Pat. Office

MAY
1942

SANITARY Products Section, which forms a part of every issue of SOAP, begins on page 71.

MEMBER AUDIT BUREAU OF CIRCULATIONS

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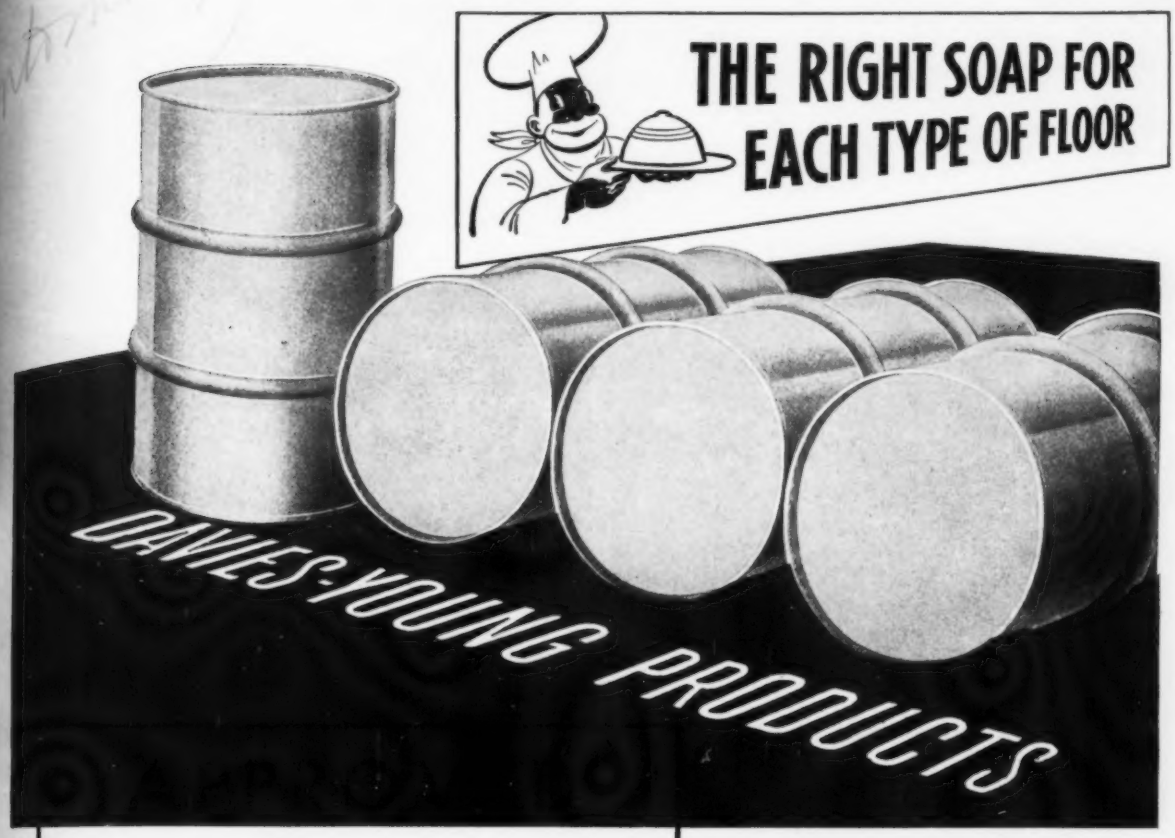

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We will be glad to suggest recommendations for particular kinds of floors.

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Aromatics for soap

BY Albert Verley AND COMPANY

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Now "made in U.S.A."— freeing you from dependence on foreign sources

Aliphatic Aldehydes

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Formerly these fine chemicals — with their welcome addition to the distinction and sales appeal of your perfume compositions—were available only from European sources, at prices beyond the reach of the soapmaker. • Today they are manufactured 100% in our Chicago laboratories, at practical prices, and the perfume industry is using them widely with notable success.

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Both Rose Geranium Bourbon and Rose Geranium African have been reproduced by the House of Verley with amazing fidelity to nature — thus enabling you to save money while maintaining your reputation for quality. Equal progress has been made in the synthesis of Lavender and Bergamot.

Write for working samples and prices—which, in view of the quantities required, are well within the soapmaker's means.

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AND GOLD it is, this soothing LANOLIN . . . an unguent, healing balm, derived from downy fleece and blended into HY-O-LAN—*the powdered hand soap sensation* that is winning back for jobbers . . . the golden sales dollars lost when priority shortages struck.

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Women workers—your big new soap market—reveal that HY-O-LAN gives them the beauty protection of bar soap PLUS a grime cleansing potency that no bar or liquid soap can equal.

HY-O-LAN reaches deep into the pores—*lifts out* smudge, grease and stains embedded between knuckles and around finger nails. It removes printer's ink. Unlike old style hand soaps, HY-O-LAN can't clog drains.

Wherever people work, there are hands to clean—SAFELY. Never before have there been so many hands at work. Nor have jobbers sold so much of a hand soap to so many buyers—as they are selling HY-O-LAN. *We can ship all the HY-O-LAN you can sell!*

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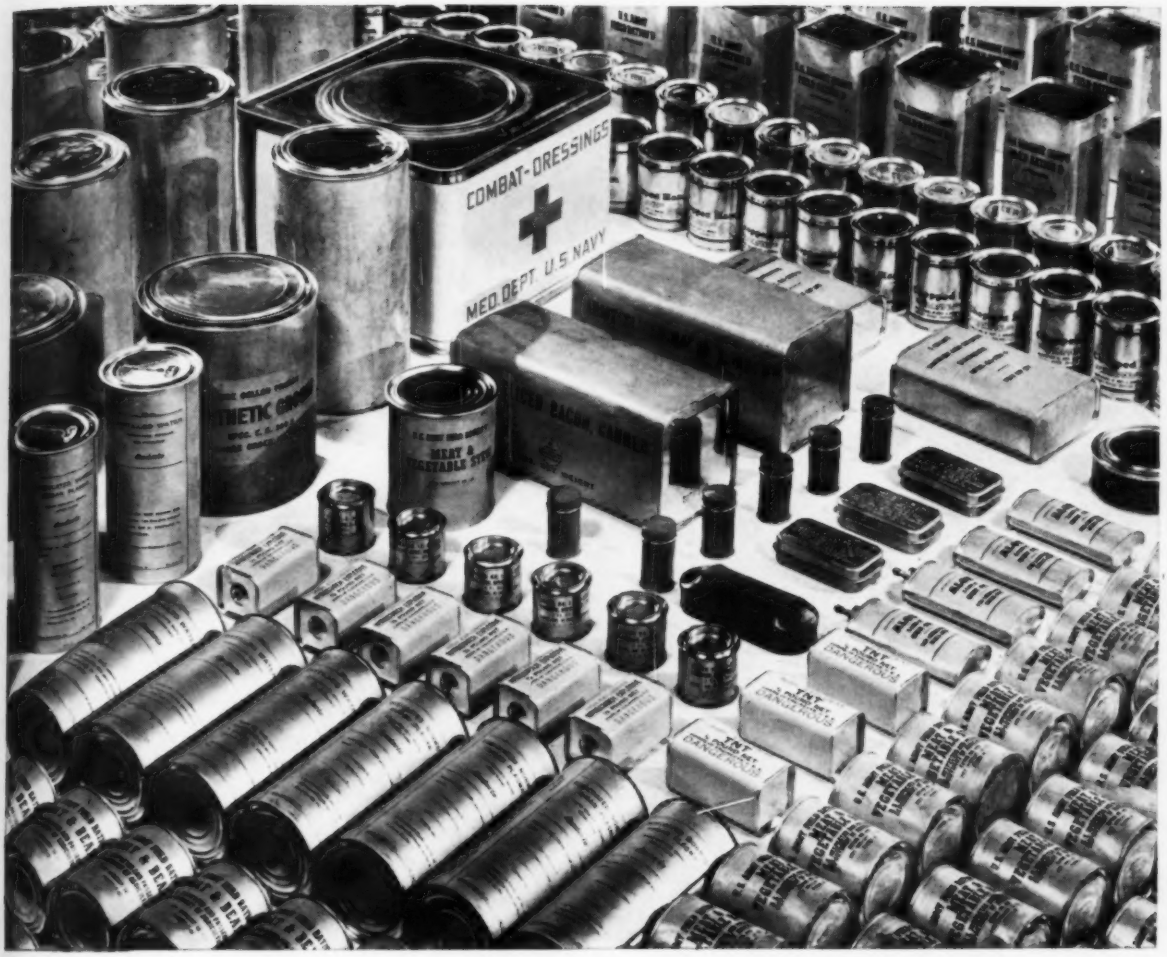


SOME "NON-SECRET" WEAPONS THE AXIS WOULD LIKE TO HAVE

Study the Labels on the cans and packages in the picture above.

On some of them, you'll notice "Army Sliced Bacon, Canned . . . U. S. Marine Corps Field Ration D . . . U. S. Army Meat and Vegetable Hash . . . TNT Dangerous, Corps of Engineers."

There's a container for dried human blood in the picture, too. For transfusions in the field. Another to house a delicate motor on anti-aircraft guns.

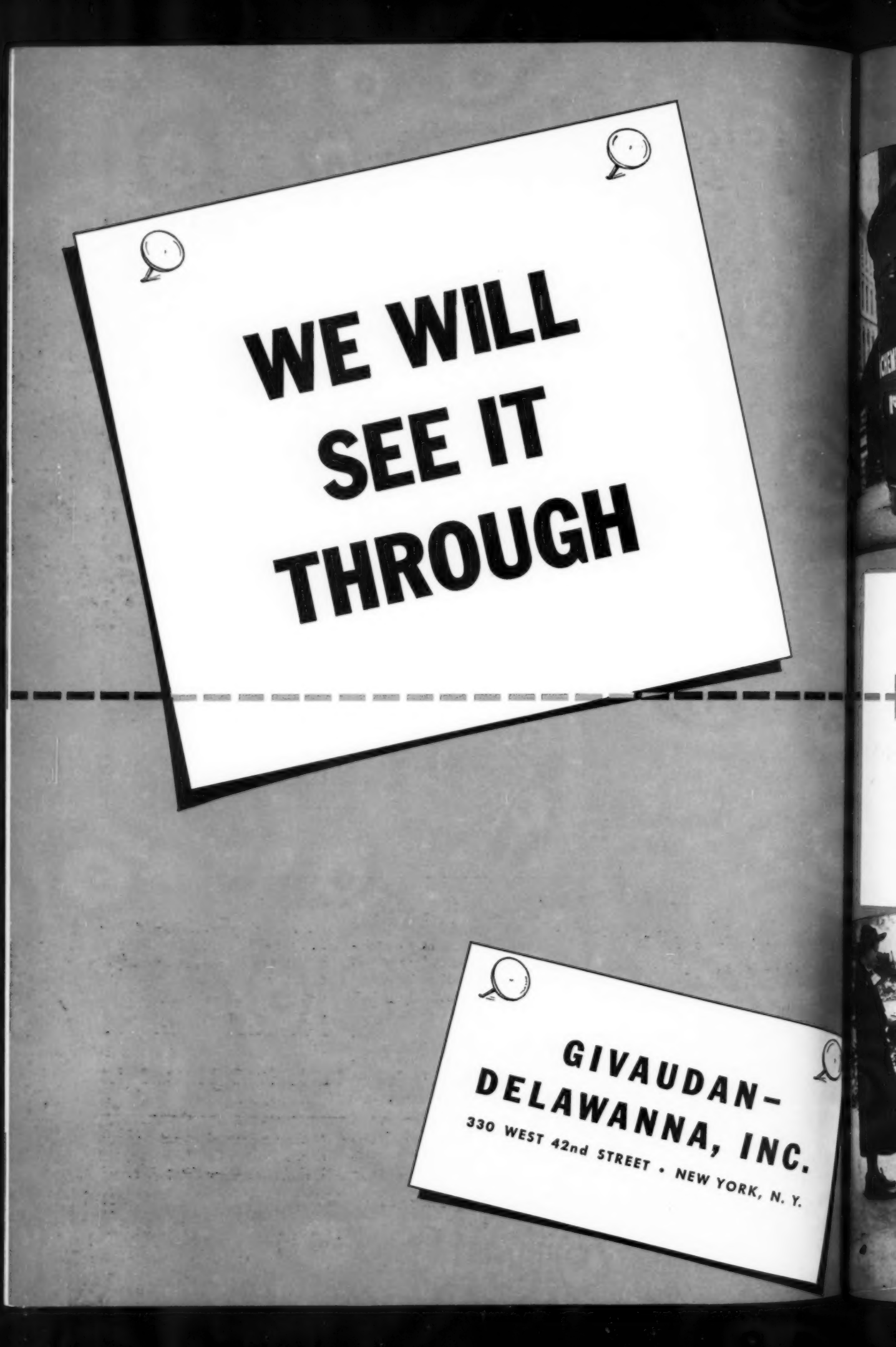
And while you'll be interested to know that these articles are some of the many defense items the containers for which are made by the can-making and packaging industries, their significance goes far beyond this simple fact.

For they are weapons. "Non-secret" weapons, if you will. And every country has them. *But the Axis would like to have ours.* Do you realize why?

The industrial resources that produced these "non-secret" weapons are the largest in the world. The Axis needs those resources.

It needs the men . . . the machinery . . . the skill . . . the research that make the quality and the quantity of these weapons possible. It needs the energy of the free, unregimented economy which produced these weapons.

We Americans can congratulate ourselves that the Axis hasn't these resources . . . that we—not the Axis—have built the greatest packaging and can-making industries in the world . . . that we are now using the sinews of these industries to resist aggression. American Can Company, 230 Park Avenue, New York, N. Y.


WE WILL
SEE IT
THROUGH
GIVAUDAN-
DELAWANNA, INC.
330 WEST 42nd STREET • NEW YORK, N. Y.

Our difficulties are pretty picayune compared to those of our friends "over there" – as these scenes from war-torn London indicate . . .

Sure, we're short of certain raw materials . . . have to do without others. Certainly, this has complicated production schedules, interrupted delivery promises. And it means a good deal of overtime on continual research for satisfactory substitute materials . . . but, all in all, we've been mighty fortunate . . .

We're in this thing now and we will see it through! *Let us all remember that no sacrifice, no contribution, can be too great if it hastens the day of Victory!*

In that spirit we are carrying on, putting first things first, confident we can do the job. And in that spirit, we will continue to do our best to meet your needs for technical assistance, service and materials within the necessary limitations of available supplies.

MOST OF IT

THE above statement is qualified because there is something worth while war does for us. It makes us all work harder, keep more alert, more attuned to the problem of producing still more and still better materials.

Under war pressure, our experts are at work on still further applications of alkalies to the textile, glass, paper, ceramic, soap and allied manufacturing fields.

Feel free to call on us at any time. We may be able to assist you in the solution of your problem.

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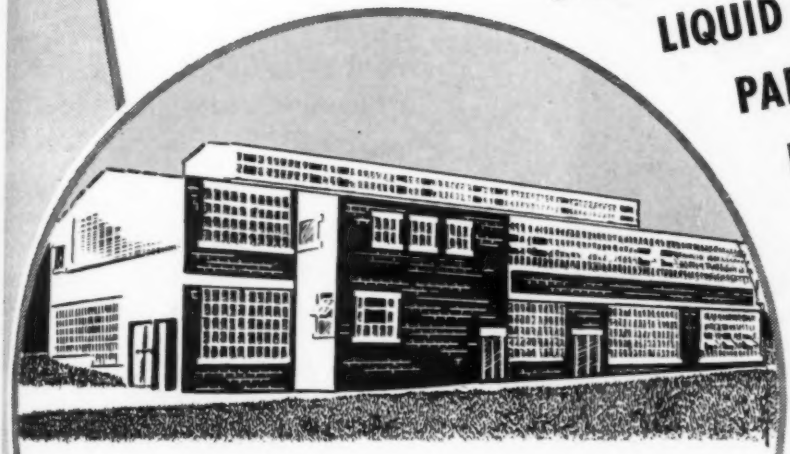

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Whatever your requirements in the field of perfume and deodorant oils, our factory and laboratories are fully able to service them. All of our products are designed and produced with a complete understanding of the job each one has to perform. That means they are thoroughly tested in the finished type of product for which you intend to use them. If the product you manufacture calls for a perfume or deodorizer, let us help you select the proper one for your needs. We will be glad to submit samples and prices for your consideration.

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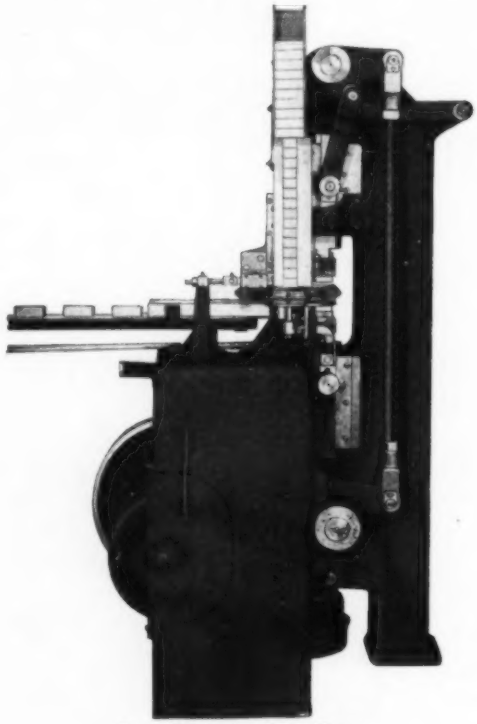
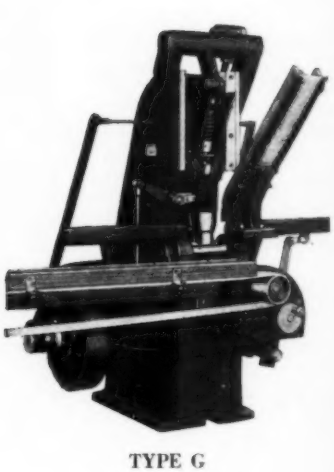


Type ET Toilet Soap Press

Well pressed cakes of soap with a beautiful finish enjoy buyers' preference.

This fact is so well established that leading soap makers now spare no expense or effort to produce cakes with the most beautiful finish, a finish obtainable only thru the use of



TYPE G
Toggle Operated
Press for Pin Die Work

JONES *TOGGLE OPERATED* SOAP PRESSES.

JONES TOGGLE PRESSES operate without noise or vibration . . . and insure greater economy in production. They are run to capacity by one operator.

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P. O. Box 485 Cincinnati, Ohio

The Standardized *Constant Motion Cartoner* packages, bottles, jars, tins, collapsible tubes and many other articles. It feeds, folds and inserts direction sheets and corrugated board liners with the loads.

AS THE EDITOR SEES IT

INSTEAD of reducing sizes, a manufacturer of shaving soaps, brushless shave, and similar items has eliminated all ten-cent sizes from his line for the duration of the war. In the food field, a number of moves in this direction have already been made. More are likely to follow in packaged soap products. The chain stores who are the biggest distributors of this type of merchandise, understand the situation. Their willingness to put in fifteen-cent sizes in place of the dime sellers has been expressed on a number of occasions. It is a war-time necessity widely recognized. Those manufacturers who continue to stick by their guns in the ten-cent market,—package changes involve many serious complications in this day and age,—will undoubtedly find their troubles multiplying as time goes on.

NOW, in Canada, manufacturers of cold-made and other soaps which contain the glycerine of the original oils are being frowned upon by the Wartime Prices and Trade Board of the Dominion Government. The pronouncement has been made by the Oils and Fats Administrator of the Board that too much soap is being made in Canada and too little glycerine being recovered. Unless Canadian soapers arrange to remove the glycerine from their fats, these raw materials will be denied them by the Government. There are many smaller soap manufacturers scattered throughout the Dominion. They are now faced with the same problem of the smaller American soapers in recovering glycerine. However, there are ample fat-splitting facilities economically located in the United States, whereas in Canada, this is not the case. This may complicate the problem for the smaller Canadian plants and should be taken into consideration by the Oils and Fats Administrator.

FAT splitting for the trade takes on new importance as W.P.B. restrictions aimed to boost our glycerine output tie the hands of soap manufacturers, especially the smaller soapers. For those soap makers who are unable or unwilling to recover their glycerine, custom fat splitting may be the answer. Of course, there will always be those who maintain that they cannot use fatty acids, that the whole oils and glycerine content are necessary to their products. But conditions today represent an emergency, and there is little or no choice. It is far better to have our oils and fats split than to have no fats at all. The custom fat splitters have stepped right into the situation. They will take the soaper's oils and at a cost of from three-quarters of a cent to one-and-a-half cents per pound,—plus the glycerine which they keep,—they will return around 95 pounds of split fatty acids for each 100 pounds of oil.

Complaints of a few smaller soapers have been heard that the present situation plays right into the hands of the large firms, particularly because the price spread between

whole oils and corresponding fatty acids is too wide. Taking into consideration splitting cost, and sometimes bleaching cost, we have found this not to be the case. We feel that adequate fat splitting facilities available to soapers, large or small, will act as a very effective competitive means of preventing too wide a spread between whole oils and their fatty acids. Once the present situation has had an opportunity to adjust itself to a basis of maximum glycerine recovery from all soap kettle fats, we believe that this contention will be self evident.

ARMED with priority ratings, fly-by-night concerns have been doing business in a big way in many scarce and restricted chemical materials. This has been going on for the better part of the past year and has brought forth numerous complaints from old and well-known companies in these and allied fields. When scarce chemicals have not been available from suppliers of long standing, it seems that these firms very often have been able to deliver the goods. Some of these fly-by-nights were unknown in the chemical products field a year ago, and yet we note the awarding to them of government contracts instead of to companies known for years to be producers or first hands.

Reports from Washington indicate that the W.P.B. has taken its first steps to call a halt to this so-called "black market" for chemicals. Our reaction to this news is that it is about time the W.P.B. acted. They must realize that these heretofore unknowns are the usual war-time scalpers, out to make a quick dollar. They must have known for some time that these fly-by-nights have embarrassed and interferred with the legitimate business of chemical producers, and that such chiselers are a hindrance to our war effort. Cracking down on one or two of them is not enough. This entire fly-by-night fringe should be eliminated right now! They have no place handling government contracts or priority chemicals in the present emergency.

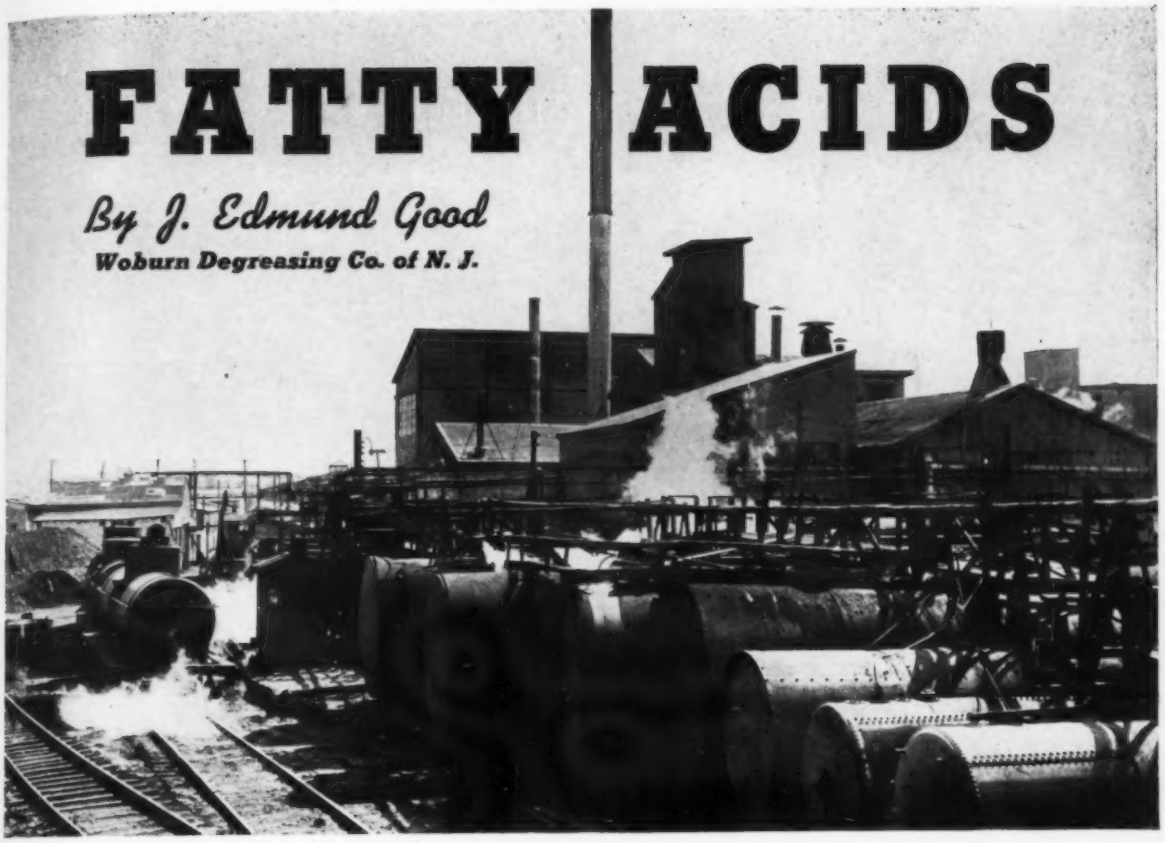
IN A recent discussion of the outlook for soap supplies in the United States, as part of an article on fats and oils, *Fortune* magazine paints a somewhat gloomy picture of the future. The writer urges an immediate campaign to conserve fats, saying that coconut oil is just the beginning. Soap men are taken to task for talking "zestfully" of the need for 240 million pounds of glycerine this year, which would mean a larger output of soap. That there will be ample fats for soap manufacture is labeled "a soap man's dream."

In consuming 60 per cent of the world's soap, says the article, the U. S. wastes immense quantities of it. "Big factors in the waste are liquid and powdered-soap dispensers which should be replaced for the duration by individual cakes carried by workers. Washing soda should replace soap flakes and powders for dishes. Industry, public kitchens and restaurants might use detergents, synthetic nonfat soaps. As high as 800 million pounds of fat can be saved by incorporating more fillers like borax and washing soda into cake soap."

All this latter is just so much tripe. The U. S. consumes about 30 per cent of the world's soap under normal conditions, not 60 per cent. Total soap waste by mechanically dispensed soap is infinitesimal. Washing soda for dishes! For this ridiculous suggestion the author should be sentenced to wash dishes with soda for one week,—and then taken to a good dermatologist for treatment. Synthetic nonfat soaps and detergents? The raw materials for these are as scarce as hen's teeth, far more scarce than oils or fats. Save 800 million pounds of fat with fillers? More twaddle not worth a detailed answer. The whole thing is another of those "we view with alarm" war articles that would better have been left unpublished.

FATTY ACIDS

By J. Edmund Good
Woburn Degreasing Co. of N. J.



ON March 20th, the War Production Board issued an order restricting the use of all lauric acid oils with a content of 35 per cent or higher unless the glycerine content had been removed. This order included such specific oils as coconut, babassu and palm kernel. On March 20th, a second order likewise restricted the use of palm oil from which the glycerine content had not been removed. Here were rulings that directly affect the soap industry, and in particular the numerous soap manufacturers who lack the equipment and facilities for extracting the glycerine from their oils and fats. These soapers were stunned by the import of the rulings. Did it mean that they might have to go out of business? Fortunately there is no such necessity.

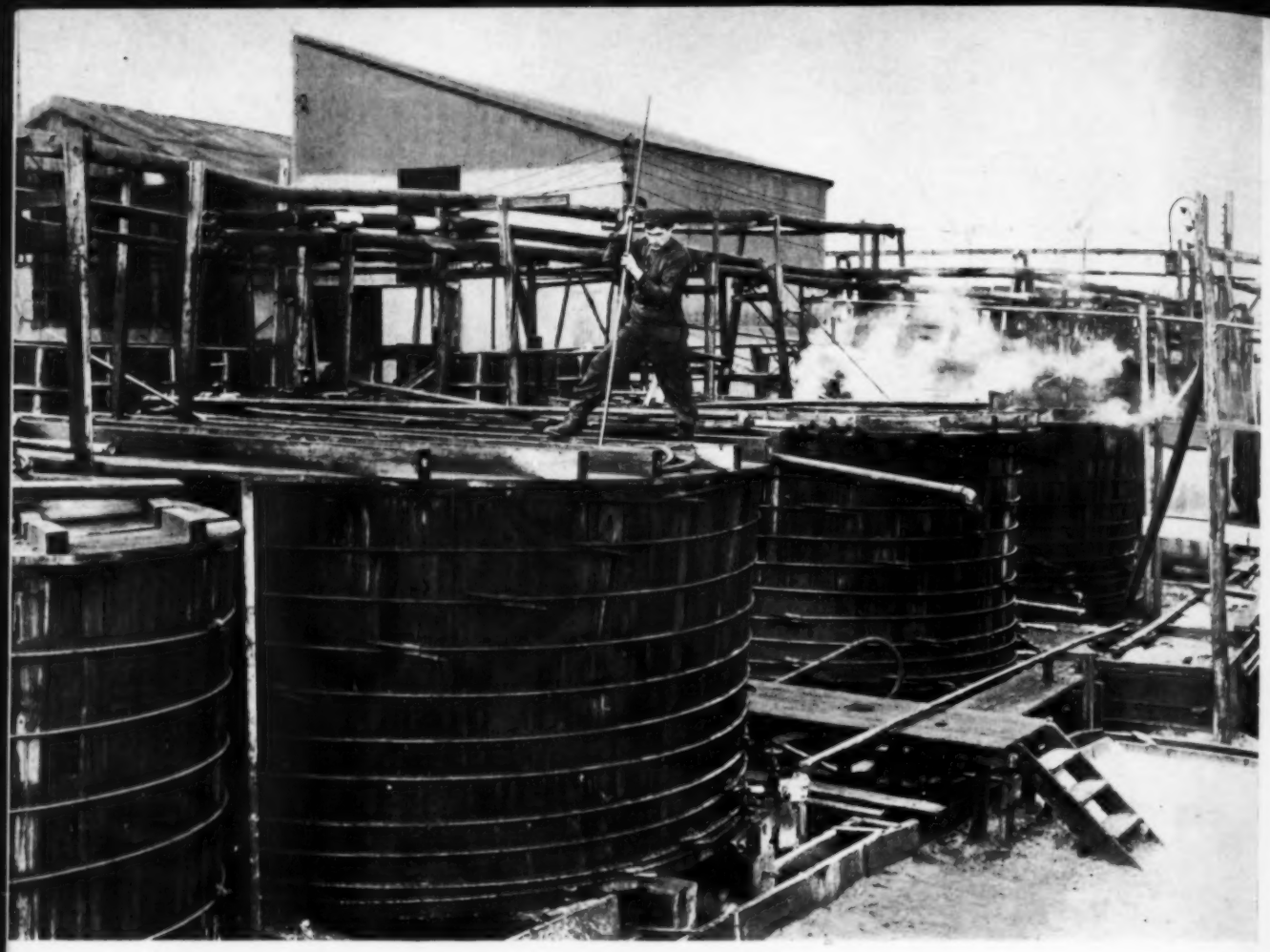
For many years the larger soap concerns have been to a great extent removing the glycerine and using the resulting fatty acids, and have been doing it for two reasons:—first because the glycerine is a valuable by-product, and secondly because the resulting fatty acids make soap more quickly with better color.

The potash soapers can have the same advantages today. They can multiply their present capacity several times through use of fatty acids. The time required for most of them working with the whole oils has been generally 36 to 48 hours—while with fatty acids the saponification cycle is two to three hours. Thus the capacity of smaller plants can be greatly increased.

Who knows but that the restrictive rulings of March 20th may result in a greater supply of soap for the nation's needs than was generally expected when the rulings first were announced? And who knows but what the war-time necessity that stimulated this move may not result in a general improvement in the standard of soap stocks that will carry on for many years after the war has ended? For it is the opinion of those most familiar with fatty acids for soaps, that once the soapers have made the change and learned how to handle their products with fatty acids rather than raw oils, the advantages will be such that manufacturers will not wish to go back to the old and slower methods. The use of fatty acids will have proved more profitable.

But there is another question that the soapers will want to have answered immediately, and that is, "Will I be able to get a sufficient supply

The case for fatty acids today in their new importance as raw materials for the soap maker



of fatty acids to keep my plant going? And will the cost of fatty acids be low enough to insure profitable operation of my plant?"

The fatty acid industry is ready and prepared to furnish immediately enough fatty acids to meet all the needs of the soapers who must buy glycerine-free stock with the exception, of course, of fatty acids from those oils restricted for more vital war uses, and those oils no longer imported. Of course no single fatty acid producer can meet the needs of everyone, but among them all, they are ready to supply the demand.

The initial step in the production of high specification fatty acids is the very splitting of the glycerine that the government now requires, from the fatty acids in vegetable oils. That is an old story. At the risk of repeating elementary information, let me explain:—Fatty acids are the long chain monobasic acids that are in combination with the glycerine to comprise the common oils and fats. The glycerine being removed, the product that remains is unrefined fatty acid. But modern fatty acid manufacture carries the process much farther than that. In new types of equipment, the crude fatty acids today are distilled to a degree of quality not heretofore obtainable, the finished products being completely free of albuminous and oxidized matter, and much lighter in color than in years gone by.

One of two processes used in fat splitting is the Twitchell Process. By the use of splitting reagents and steam, the oil is split into glycerine and fatty acid. Depending on the oil, this process takes from twenty-four to forty-eight hours.

Viewed from the angles of both quality of finished products and cost, there are many advantages to soap manufacturers in the use of fatty acids in place of whole oils. The more important of these are listed below:

1. *Simplicity:* The manufacture of soaps from fatty acids is a simpler procedure. The typical method is described in detail later.

2. *More uniform product:* Fatty acids are more uniform than whole oils because:

   a. Being manufactured, they can be controlled more easily than natural oils.
   b. Gross impurities are removed.
   c. Constants can be adjusted by mixing batches.

3. *Time saving:* As the glycerine is already removed, the time of saponification is greatly shortened. Also, since the impurities as well as the glycerine are not present, the long and tedious "salting-out" operation is not required.

4. *Easier saponification:* Tests may be made for excess alkali or fatty acid shortly after mixing without danger of a slow and delayed reaction altering the finished product. Slight adjustment can be made with little likelihood of later changes.

5. *No shrinkage:* With distilled fatty acids, the entire fat component

goes into the soap, whereas there is a loss in the form of glycerine by those companies which in their processes do not recover the glycerine. Under these conditions, weight by weight, fatty acids will give approximately 5 per cent more soap than the raw oil from which the fatty acids were obtained.

6. *Better choice of alkalies:* Milder alkalies can be used which would not react with the raw oil; as triethanolamine.

7. *Economy:* In addition to lower labor and equipment costs due to producing the same volume of soap in less time, or a much larger volume in the time formerly necessary when making soaps from the oils, there is a resultant saving in steam. Equipment turnover is several times greater.

8. *Less possibility of turbid soaps:* Complete saponification obtained prevents turbidity. With oils, even with careful boiling, the saponification reaction is not complete for a long period.

9. *Better control of finished soap:* It is much easier to obtain a soap that is 100 per cent saponified from fatty acids. For complete saponification, about 0.12 per cent excess alkali is required. Also, as the product used as a starting base is a manufactured product, the soap maker is certain of employing a more uniform article than when he starts with nature's material. The rigid control exercised in the manufacture of fatty acids today assures users obtaining uniform materials of high quality which results of course in uniformity of the finished soap product.

10. *Bleaching not necessary:* With proper bleaching materials hard to get at this time, it is particularly interesting to note that bleaching is unnecessary when distilled fatty acids are used, because foreign coloring matter has been removed in the fatty acid manufacturing process.

THE following typical procedure for batch lot production is a simple and practical one for making soap from fatty acids. (Or it can be made continuously by a proportionating pumping system.)

1. The necessary amount of caustic soda (dry or liquid) is put into a tank and diluted to a concentration of from 8 per cent to 10 per cent (Spec. Gravity 1.10) preferably using soft water. Based on caustic soda (NaOH), the amount can be calculated simply as follows:

The saponification number of the fatty acid to be "S"

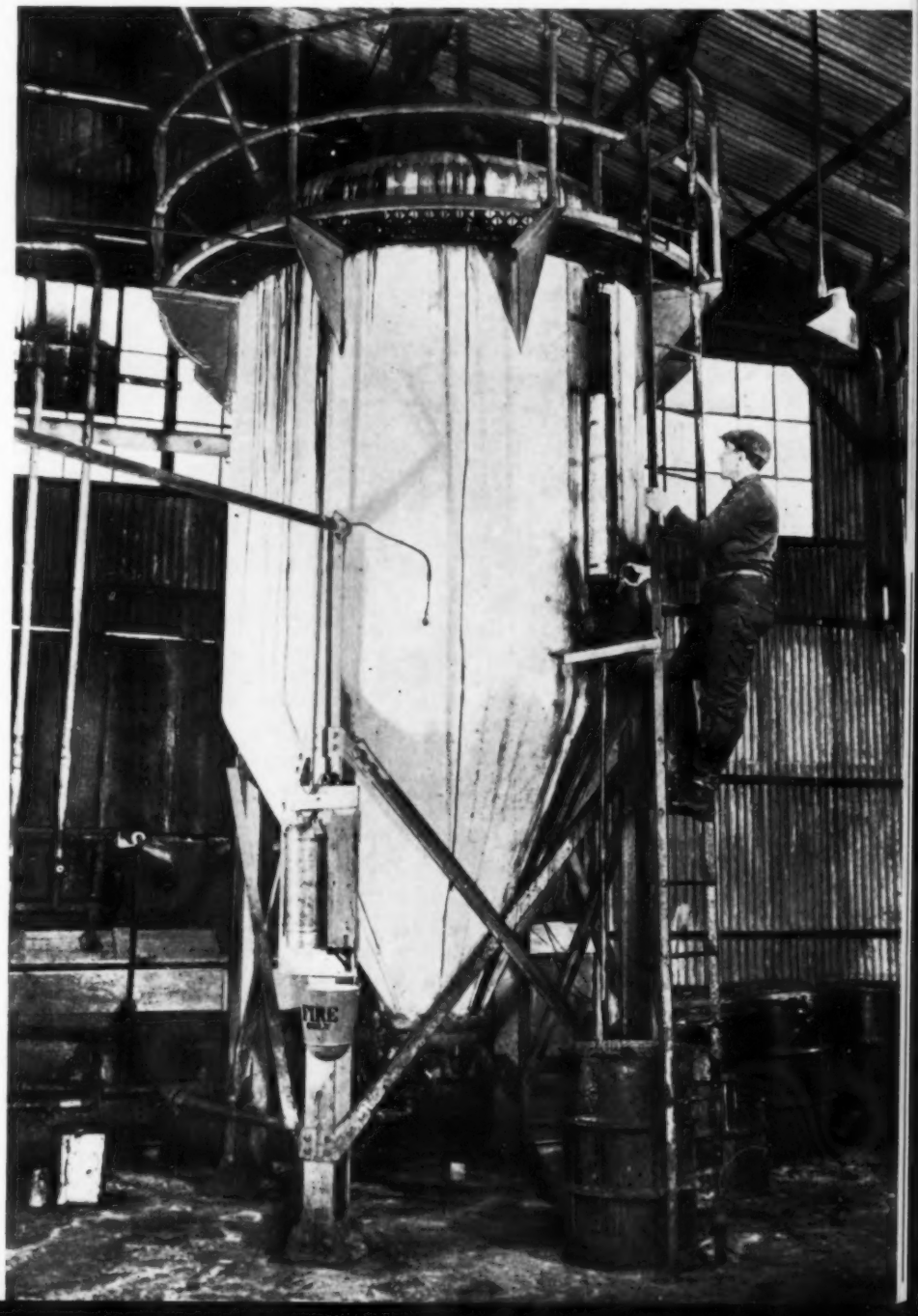
The amount of fatty acid required to be "F"

Caustic soda (dry flakes) to be used:

$$\frac{F \times S \times 40}{1000 \times 56 \text{ lbs.}}$$

For every pound of dry caustic add five quarts of water; for every pound of 50 per cent liquid caustic add three quarts of water.

2. The barrels or drums containing the fatty acid are rolled over



High-pressure, high-temperature fat splitting in an autoclave with the use of chemical reagents. Newer than the Twitchell Process, it is also faster and more efficient than that process. This equipment will split close to eight million pounds of oil per year.

the dumping pit and allowed to drain.

3. The steam is turned on slightly and the fatty acid is pumped into tank with valves throttled so that the fatty acid entering the lye in the kettle is easily dispersed by the swirling liquid. After all of the fatty acid has been added, proceed with steam agitation and boil to a clear liquid. Then open the valve on tank and start the pump again to wash out lines still containing fatty acid.

The soap in the kettle should then be tested with phenolphthalein. A very slight pink will indicate a practically neutral soap. If too red, more fatty acid is added; if white, more caustic soda should be added in small quantities at a time. Exact pH control can be obtained with standard instruments, or by the usual titrations.

After every addition of new materials, the pump should be started for proper blending. Steam will help materially in finishing the reaction quickly.

If the addition of "builders" is desired, they should be added after the soap is finished in order to conform with the alkalinity. Otherwise it is difficult to maintain uniformity.

If caustic potash (KOH) is used, rather than caustic soda, the formula will be:

Caustic potash (dry flakes) to be used: $\frac{F \times S}{1000}$

or, to convert from the amount of caustic soda in a formula to the corresponding amount of caustic potash, merely multiply by the factor $\frac{56}{40}$.

Caustic potash liquid can also be used if preferred.

PARTICULAR reference is made to the production of toilet soaps from palmitic acid. This acid is preferred for use in toilet soaps, either alone or in combinations, and results in soaps of a good color, odor and a stable character. The soap is not as hard as a tallow soap, but is hard enough to allow proper handling. It is easier to lather and to rinse. These soaps have greater wetting-out power, fair lathering properties and do not cause irritation of the skin.

As Webb says (*Modern Soap & Glycerine Manufacturing*):—"A first class household soap should be of good color, bright in appearance, free from objectionable odor, and of medium hard consistency. It should lather freely in all waters and at the same time be economical to use. The lather should be close, pliable and durable. Tallow and palm oil suggest themselves as the most suitable materials and, in fact, these oils and fats do form the basis of household soaps and hard soaps of all descriptions."

MYRISTIC ACID . . .

Is myristic acid the answer to the smaller soap maker's prayer? As a lather producer in place of scarce coconut oil and other lauric acid oils, what are its possibilities? An article on this recently much-discussed fatty acid in the next issue by Dr. H. P. Straus, of the Woburn Degreasing Co.

Palm fatty acids, although no cure-all as a raw material for toilet and household soaps, do in the present-day oil and fat situation have properties which might bear further investigation by soap makers. Every fatty acid has its merits and drawbacks. In some soaps, palm fatty acids require blending with more quickly soluble and quick-lathering fatty acids although not as high a percentage is required, for example, as when tallow or the combined fatty acids of tallow are used.

Were ample coconut oil or coconut fatty acids available today, or lauric acid in some other form, the problem of finding fatty acids to produce quick-lathering soaps would be a simple one. But, it is because of the stringent position of all fats high in lauric acid that other fatty acid combinations must be used in an attempt to produce similar lathering properties. Myristic acid has to some extent offered a solution of this problem, and as well, has other properties which it imparts to soap that make it superior in some respects to lauric acid. Likewise, to produce lather, and for use in combination with palm fatty acids and other fatty acids giving less-soluble soaps, so-called "tailored" fatty acids are being produced today. These are combinations of various fatty acids, produced to exact specifications, to give effects in soap and other products which are known definitely in advance from the composition of the mixture. With a "tailored" mixture of fatty acids, the properties of finished soaps may be controlled exactly from batch to batch.

WITH the long strides which have been made in fat chemistry over the past decade, there are today on the market more pure fatty acids and combinations of fatty acids than there are natural fats. Not only are there the complete fatty acids of the whole oils, such as soya bean fatty acids, corn oil fatty acids, coconut fatty acids, and similar vegetable oil fatty acids which have already shown much promise in the manufacture of soft and liquid potash soaps, but these complete oil fatty acids have in turn been fractionated to give individual fatty acids such as lauric, myristic, capric, palmitic and others.

These pure fatty acids have further been combined into mixtures with altogether new properties not obtainable in any natural fat. Fatty acid combinations give a flexibility in determining the properties of finished soaps and other products which also cannot be obtained by the use of the whole oils.

Of the purified fatty acids on the market at the present time, only stearic and oleic date back more than ten or fifteen years as commercial articles. With these, manufacturers of dry cleaning soaps, shaving soaps, textile soaps, and other soap products have been familiar for years and have used them in large quantities. But the newer types of fatty acids have only more recently begun to win their "place in the sun" as far as general soap manufacture is concerned, although they have found wide acceptance in many specialty soap products. Recent government action in restricting the use

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New Soap Process

Saponification via methylation of fat with high direct glycerine recovery .... Examples of application of new Patent No. 2,271,619

By George B. Bradshaw

E. I. du Pont de Nemours & Co.

GLYCERINE requirements of the war program are far greater than the normal production of the United States. Because the richest source of glycerine, coconut oil, is currently shut off from the American market, these requirements are particularly significant. Emphasis is now being placed on the fact that soap should be manufactured only where the process makes glycerine recovery possible. One way to accomplish this is to split the fat, remove the glycerine, and make soap from the fatty acids. Fat splitting plants require expensive equipment involving use of alloy steels now almost impossible to obtain. This applies if the fats are split in the usual ways. However, as has recently been pointed out in U. S. Patent 2,271,619,* fats can be split economically by means of alcohol, and the reaction can be carried out at ordinary temperatures and pressures in iron equipment. Further, the glycerine can be almost completely recovered directly as anhydrous material of over 80 per cent strength.

The patented reaction is an alcoholysis instead of the usual hydrolysis. The fat is changed from an ester of glycerine to one say of methyl alcohol. The reaction occurs in a few minutes and the glycerine separates immediately by gravity. If methyl alcohol is used, the amount required may be as little as 20 per cent greater than the amount of 100 per cent glycerine recovered. The methyl esters when made into soap can yield back the methyl alcohol. A quotation from the patent will make the above plain.

"The oil employed should be nearly dry and substantially free from free fatty acids and mucilaginous vegetable matter. The ester value of this oil is obtained by well known means. The oil is heated to a moderate temperature, e. g., about 80 degrees centigrade more or less, depending on the time apparatus can be held up. There is then mixed into the oil about 1.6 equivalents of commercially anhydrous methyl alcohol, containing from 0.1 to 0.5 per cent caustic soda or potash calculated on the oil used. The amount of caustic depends on the dryness and acidity of the oil being treated and of alcohol used, and the speed of reaction desired. The glycerine begins to separate in a very short time, for instance, within 15 minutes. The conversion to methyl ester is about 98 per cent complete generally in less than one hour. The oil tests alkaline at this stage. The lower layer of anhydrous glycerine which first develops consists of at least about 90 per cent of the glycerine content of the original oil and may contain a small amount of methanol. The alcohols can be washed out of the formed esters with two or three washes of a small amount of water each time, which settles and can be drawn off each time from the bottom. This operation also purifies and lightens the color of the original oil.

"The amount of alcohol required for the liberation of the glycerine is not limited to the proportions above stated, but may be varied somewhat. Furthermore, the amount can be reduced substantially by working in steps. For instance, if the theoretical quantity of methyl alcohol is used, the conversion will be about 80 per cent. The glycerine can then be removed and more alcohol and catalyst added. If the alcohol is added in three steps the amount required can be reduced, for instance, from one and six-tenths times theory to one and two-tenths times theory. Amounts of methyl alcohol above 1.75 equivalents tend to prevent the gravity separation of the glycerine, thus adding useless expense to the separation. Amounts of alcohol from 1.20 to 1.75 equivalents represent a practical range."

THIS process is unusual since it involves an ester interchange carried out without the use of large excess of alcohol and refluxing conditions. Apparently it works because it is catalytic and because so little alcohol is used that there is no intersolubilizing effect. The glycerine is then free to separate by its greater gravity. If soap is made from the esters produced by this process, the saponification will proceed at less than boiling temperatures. This is because the reaction is exothermic and because methyl alcohol which is set free is a solvent for both soap and caustic soda.

There are many implications of the process which are covered by the issued patent and patent application. For instance, the process is susceptible to continuous operation; anhydrous soaps can be produced directly; special

*Issued to George B. Bradshaw and Walter C. Meuly, and assigned to E. I. du Pont de Nemours & Co., Wilmington, Del.

spray drying techniques can be employed.

As already mentioned, the process uses dry neutral fats. It is possible to handle fats containing a small amount of moisture and free fatty acid, but in such cases more alkali is necessary and the glycerine may not immediately separate. In this instance, some soap is formed and it must be removed by acidification before the glycerine will separate. Acetic acid works nicely for such acidification. The free fatty acids formed go to the ester layer.

The glycerine produced by the alcohol hydrolysis process is comparable in quality to the crude glycerine now furnished refiners. It is superior in that it is anhydrous. If refined fats have been treated, the glycerine obtained can be used directly in many processes, for instance in the glyptal synthetic resin process.

THIS soap process differs from other soap processes by the use of alcohol as a medium for splitting off the glycerin from the soap stock while those in practical use have been using water for this purpose. The ordinary boiled soap process also uses water primarily for the splitting of the fats but the fatty acids thus formed are then at once saponified to soap. Methods are described in the literature to avoid the use of water, by saponifying soap stock with solid caustic, with or without the presence of diluents like kerosene. These methods require extreme conditions of heat, such as are required to melt caustic or to melt anhydrous soap, and furthermore a vacuum chamber is usually needed to separate glycerine and/or solvent by distillation.

Alcohols have the welcome property of facilitating this splitting operation to such an extent that very little or no heat has to be furnished for this reaction. The alcohol slips into the place of glycerin in the fat molecule and sets free the glycerin itself. At the present time the glycerin cannot be separated when potash soaps are manufactured, because potash soap cannot be salted out properly. The patented process permits the separation of glycerin equally well when potash soaps are made.

Furthermore, under the conditions of the patented process, the amount of alcohol needed is practically only as much as is required according to chemical equation for the replacement of the glycerin; this causes the glycerin to separate off in almost pure and undiluted form. This is a considerable simplification over the processes utilizing water for the splitting, because with water it is necessary to use a large excess of water, so that the resultant glycerin is obtained as a weak aqueous solution. The amount of alcohol needed may run as little as 12-20 per cent of the amount of soap stock, which is only slightly more than the amount of glycerin liberated. This makes for extreme economy in equipment size so that a given size kettle will produce considerably more than with the conventional soap processes.

The result of the splitting operation with alcohol is a so-called fatty

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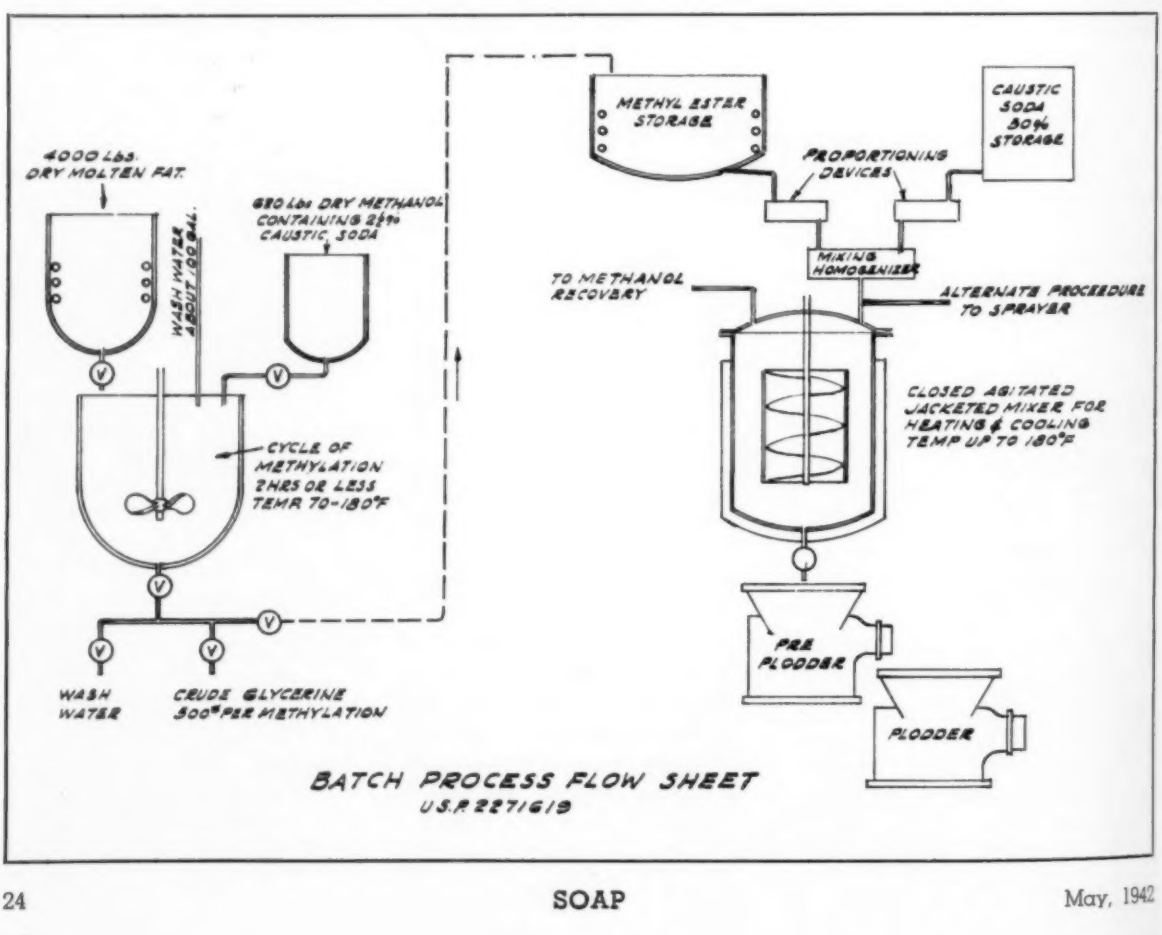
METHYL ESTER STORAGE
CAUSTIC SODA 50% STORAGE
PROPORTIONING DEVICES
4000 Lbs. DRY MOLTEN FAT
620 Lbs DRY METHANOL CONTAINING 2½% CAUSTIC SODA
WASH WATER ABOUT 100 GAL.
MIXING HOMOGENIZER
TO METHANOL RECOVERY
ALTERNATE PROCEDURE TO SPRAYER
CLOSED AGITATED JACKETED MIXER FOR HEATING & COOLING TEMP UP TO 180°F
CYCLE OF METHYLATION 2 HRS OR LESS TEMP 70-180°F
PRE PLODDER
PLODDER
WASH WATER
CRUDE GLYCERINE 500# PER METHYLATION

BATCH PROCESS FLOW SHEET
U.S.P. 2271619

The Trend in SOAP BUYING HABITS

Milwaukee survey shows gain in popularity for granulated soaps . . . Both brown and white laundry soaps also share increased market . . . Significant 10% increase in consumption of water softeners . . . Market for scouring cleansers also expands . . . First reports on disinfectant and wallpaper cleaner purchases.

THE tremendous increase in soap production last year has been reflected very promptly in an increase in consumption by the buying public, to judge from figures just released by the *Milwaukee Journal* in its annual "Consumer Analysis of the Greater Milwaukee Market." This Milwaukee survey, which is the oldest survey of its kind in the country, is based on a careful shopping study of the preferences of 7,500 Milwaukee housewives. With Milwaukee judged by many market analysts to represent a typical American urban consumer section, the *Journal's* figures offer a key to the buying trend in other urban markets. The survey analyzes brand preferences, average consumption and use and non-use of a whole series of soaps and allied products. A summary of the findings in the 1942 survey follows.

Granulated Soaps

Among laundry soap products, granulated soaps or soap beads took first place in consumer preference on the basis of 1942 figures. Use by 81.5 per cent of reporting families is reported this year, an increase from the 1941 figure of 78.3 per cent. It is interesting that granulated soaps have their highest popularity among families of the lowest income bracket. This trend is just the reverse of the situation in package soap flakes or chips, where the highest popularity is reported from the uppermost income brackets.

Milwaukee buyers report use of 65 different brands of granulated soap or soap beads this year, with "Rinso" retaining its number one position with a preference figure of 51.3 per cent, a gain from the 1941 figure of 48.8 per cent. "Oxydol" held second place with a popularity figure of 48.4 per cent, also registering a gain from its 1941 rating of 44.1 per cent. More than doubling in popularity in the course of a single year, "Duz" took over third place in the preference ratings from "Super Suds." "Duz" is preferred by 23.9 per cent of Milwaukee buyers this year as compared with 10.7 per cent in 1941.

Package Soap Flakes

After showing a popularity gain in each year since 1939, package soap flakes and chips eased off slightly this year, with a popularity figure of 81.3 per cent as against 81.5 per cent in 1941. Among the 51 brands of soap flakes and chips reported in use, "Lux" flakes continued to hold first preference, with a rating of 41.6 per cent as against 34.5 per cent in 1941. "Ivory" flakes moved from third to second place, with a gain in preference from 19.2 to 23.1 per cent. "John Hanser" dropped to the third spot, falling to a preference rating of 21.5 per cent from the 1941 figure of 26.3 per cent.

The tendency of families to buy both flakes and granulated soaps showed an increase this year. Some 65.2 per cent of reporting families this year reported use of both types of products as compared with 61.9 per cent last year. Of the reporting families, 16.6 per cent use soap flakes only, and the same percentage use granulated soaps only. Only 1.6 per cent buy neither soap flakes nor granulated soaps.

Toilet Soap

Use of toilet soap is so close to universal that there is little apparent significance in the reported increase in use from a figure of 99.6 per cent last year to 99.7 per cent in 1942. Some 89 different brands were reported on the Milwaukee market, with "Lux" again the leader with a popularity figure of 23.3 per cent. "Sweetheart," still in second place, rates at 19.7 per cent, with "Camay" moving into third with 13.8 per cent. "Ivory," pushed back to fourth place this year, has a figure of 13.7 per cent. "Palmolive" and "Lifebuoy" hold fifth and sixth places, with percentages of 12.5 and 6.2 respectively. The newcomer "Swan" is next in line at 6 per cent.

Separate figures are given on toilet soap for bath use. "Lifebuoy" again occupies first place in this grouping, although dropping from a popularity of 29.8 per cent last year to 26.3 per cent for 1942. "Ivory" is in the second spot with a figure of 18.8 per cent and, "Lux" in third place with 14.6. "Sweetheart" is still fourth with 14.4 per cent and the new "Swan" moves into fifth place with a rating of 9 per cent.

White Laundry Soap

White laundry soap reached its highest level of acceptance this year, being purchased by 67.1 per cent of Milwaukee housewives, as against 63.5 per cent in 1941. Highest use is found among families of the lower income bracket where 70.5 per cent are regular buyers. Only 58.5 per cent of the higher income group are reported as regular buyers of white laundry soap. Among the 18 brands offered on the Milwaukee market, "P. & G." in first place, is preferred by 67.2 per cent of buyers, a decline from the 70 per cent preference figure registered a year ago. Second place goes to "Ivory" with a gain in popularity from 19.1 per cent in 1941 to 19.5 per cent in 1942. "Crystal White" retains its third place standing in spite of a drop in preference from 18.2 per cent last year to 11.4 per cent this year. "Swan," a newcomer to the tabulations and to the market, jumped at once into fourth position, being preferred by 5.1 per cent of Milwaukee housewives in its first year.

Brown Laundry Soap

After showing a consistent popularity decline over a period of many years, brown laundry soap finally succeeded in reversing this trend in 1942, its popular acceptance moving up to 59.1 per cent from the 1941 figure of 56.4 per cent. The highest popularity of brown laundry soap is found among the lowest income group where it is used by 62.6 per cent as against only 53.7 per cent of the highest income bracket. Of the 15 brands reported in use, "Fels Naptha" continues to stand out far ahead of all the rest. This perennial favorite is preferred by 83.4 per cent of Milwaukee brown laundry soap buyers this year, as compared with a figure of 81.5 per cent for 1941. "O.K." in second place drops from a 1941 rating of 11.3 per cent to a 1942 figure of 9.9 per cent. "American Family," still in third place, has a preference rating of 5.9 per cent.

An appreciable gain is reported this year in the number of Milwaukee families buying both white and brown laundry soap. The current survey reports 37 per cent of buyers to be in this class, as against only 32.3 per cent in 1941. The percentage this year buying only white laundry soap is 30.4, while 22.2 per cent buy only brown laundry soap. Some 10.4 per cent buy neither white nor brown laundry soap.

Scouring Cleansers

With a gain from 90.3 per cent in 1941 to 96.5 per cent in 1942, package scouring cleansers attained a new high popularity this year. Use is highest among families in the upper income brackets, with 98.1 per cent of this group being regular buyers, as compared with 94.6 per cent in the lower income group. The number of brands available to the consumer this year is 45, with "Kitchen Klenzer" still taking top billing on a popularity of 35.7 per cent, an increase over last year's figure of 32.6 per cent. "Old Dutch" holds second place safe in spite of a drop from last year's figure of 24.8 per cent to a popularity of only 20.9 per cent for 1942. "Bab-O" moves into third place with 7.5 per cent, followed by "Brite-Ize" and "Gold Dust."

Water Softeners

This year the use of water softeners and soap crystals took a sudden jump to a new high figure of 38.1 per cent, after holding at a relatively steady level in the neighborhood of 30 per cent for a period of several years. This sharp gain in popularity is particularly significant in the light of misguided newspaper talk a few months back of "soap shortages" and the publicity that has been given to a supposed necessity for saving soap. The highest popularity for this type product, incidentally, is found among families of the lowest income bracket. Of this group 41. per cent buy water softeners, while only 34.5 per cent of the high income group are regular users.

A total of 89 different brands of water softeners are currently being offered on the Milwaukee market. The stand-out product continues to be "Climalene" with a popularity rating of 64.4 per cent. "Melo" moves from third to second in the standings, with a gain from 5.6 per cent last year to 7.2 per cent in 1942. "No Name" drops to third, with preference by 6.8 per cent of Milwaukee buyers.

Household Disinfectant

This year figures were collected for the first time on household disinfectants. For purposes of the survey any product which the housewife says she uses as a disinfectant is included under this heading in spite of the fact that some of the products so classed would not be considered by the trade as disinfectants. Of Milwaukee housewives surveyed, 61.9 per cent reported that they regularly use some type of household disinfectant. The highest popularity is among the low-income group with 64.2 per cent of this group listed as users, as against only 55.1 per cent among highest income families.

In all, 147 different brands were reported in use, with "Lysol" the leader, being preferred by 43.3 per cent of the buyers. Listed in second place was "Hilex" with a preference of 22.1 per cent, while the nearest of the other brands listed, "Mag," was given a popularity standing of only 5.5 per cent.

Toilet Bowl Cleansers

Use of toilet bowl cleansers was reported by 61.1 per cent of Milwaukee housewives this year, as against a figure of 63 per cent for 1941, with greatest percentage use among the high-income group where 67.6 per cent of those surveyed were regular buyers. With 39 brands enjoying retail distribution, "Bowlene" continued to hold first place, preferred by 44.5 per cent of buyers. "Sani-Flush," in second place, was preferred by 44.4 per cent of Milwaukee housewives.

Shaving Cream

Popularity of regular shaving cream in the Milwaukee market shows another decline this year, falling from 40.9 per cent in 1941 to 39.9 per cent in 1942. The lowest income bracket again provides the best market, with 43.5 per cent of this group numbered as buyers, against 38.3 per cent of the highest income group. The number of brands of regular shaving cream on the market dropped from 73 last year to 64 for the current year.

"Palmolive" holds first place as usual, but with a loss of 1.7 per cent

over last year's figures, now claiming 38.1 per cent of Milwaukee's men buyers. "Lifebuoy," in second place reflects a consumer preference of 15.5 per cent as against the 18.9 per cent of one year ago. Next is "Williams," having gained from 11.5 per cent in 1941 to 13.4 per cent this year in consumer favor.

Brushless Shaving Cream

A slow but steady rise in popular demand features the market for brushless shaving cream. This year it is used by 22.1 per cent of Milwaukee men, a gain of 1.1 per cent over 1941. Brushless is most in demand in the uppermost income bracket, being preferred by 25.1 per cent of this class.

Among the 57 brands reported in use, "Palmolive" brushless has taken first place, recording a consumer preference of 19.3 per cent, a gain of 3.4 per cent over 1941. After a definite high in 1940, then claiming 21 per cent of the buying public, "Barbasol's" popularity figures dropped in 1941 to 18.2 per cent and further to 16.2 per cent this year, but it still holds second place. "Burma Shave" dropped from first to third place this year, losing 5.9 per cent of popular favor and now rating at 14.6 per cent.

Tooth Paste

An upward trend in tooth paste sales is indicated this year, with 65 per cent of Milwaukee families reported as buyers, compared with 61.4 per cent last year. Tooth paste finds greatest popular favor among families of the highest income group, being bought by 68.8 per cent of this class. It may be interesting to note that this year both tooth powder and tooth paste show decided gains at the cost of liquid dentifrices on which popularity figures show a decided slump.

Of the 71 different brands reported, "Colgate" leads in public favor with a preference rating of 26.6 per cent against 22.9 per cent for 1941. Trailing right behind is "Pepsodent," having gained steadily in demand among Milwaukee's families since 1939, and rounding up its 23.9 per cent 1941 rating to 25 per cent this year. Third place goes to "Ipana" tooth paste preferred by 15.5 per cent of buyers at present as compared with 17 per cent in 1941.

Tooth Powder

Demand for tooth powder showed signs of recovery over the past year with an increase in popular favor from 50.6 per cent to 53.1 per cent. This year 72 different brands are reported on the market, as compared with 62 brands in 1941. Still leading in popular favor is "Dr. Lyon's" with a preference rating of 47.7 per cent, but declining in consumer favor against percentage figures of former years which were 54.1 per cent in 1941 and 59.5 per cent in 1940. "Pepsodent" takes the second place, its 15.6 per cent popularity mark the highest point reached since 1939. Third position is claimed by "Colgate" with a sales increase from 8.3 per cent in 1941 to 8.6 per cent currently.

Liquid Shampoo

Liquid shampoo shows an increase of 7.1 per cent in popularity over 1941 figures, with a current high-mark of 57.1 per cent of all Milwaukee families buying this product. Greatest popularity is among the lowest income group, in which 59.7 per cent are regular buyers—as compared with 54.3 per cent in the highest income group. A decrease from 192 to 170 was noted as compared with last year in the number of different brands on the market.

"Drene" is still the leader with a preference rating of 24.7 per cent, although this is its lowest figure in a constant decline since 1939 when "Drene" was preferred by 42.5 per cent of Milwaukee buyers. Next is "Fitch's," showing a definite upward trend in popularity from 20.2 per cent last year to 23.8 per cent in 1942. Since 1939 the sales percentage of this brand has more than doubled. "Watkins" takes third place with a rating of 13.1 per cent—its lowest figure since 1939.

Wallpaper Cleaner

Data is presented for the first time this year on use of special wallpaper cleaners by Milwaukee housewives. It was found that 28.8 per cent of Milwaukee homes have one or more wallpapered rooms, and of all families having wallpapered rooms 25.1 per cent reported that they used special wallpaper cleaners. Forty-six different brands of wallpaper cleaner were reported in use, with "BadgerCraft" the leader in this group, preferred by 30.5 per cent of buyers. "Climax," in second place, enjoys a consumer preference of 28 per cent.

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Wages Rates Become Effective

The ruling of the U. S. Department of Labor relating to prevailing minimum wages in the chemical and related products industry under the Walsh-Healey Public Contracts Act became effective April 28, 1942. The determination of Frances Perkins, Secretary of Labor, sets the minimum wage for persons employed in the performance of contracts with agencies of the United States Government subject to the provision of the Act at 40 cents an hour or $16 per week of 40 hours for the States of Maryland, Virginia, N. Carolina, S. Carolina, Tennessee, Arkansas, Mississippi, Alabama, Georgia, Florida, and the District of Columbia, and 50 cents an hour or $20 per week of 40 hours for the remaining States.

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Canadian TGA to Meet June 8-9

The annual meeting of the Canadian Toilet Goods Manufacturers Association will be held June 8 and 9 at the Seigniory Club, Montebello, Quebec. "Toilet Goods Problems in Wartime" will be the theme of the meeting.

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Availability of Glass

Manufacturers of paste soaps, metal polish, and other products formerly packaged in tin have been forced by restrictions to turn to opal glass jars and clear glass bottles for packing. Raw materials for glass manufacture are believed to be available in sufficent amounts to permit a large expansion in the glass-making industry, although soda ash, as well as minor ingredients, may possibly be in short supply. Delay in expansion of the industry may be entailed by priorities affecting metal moulds and accessories such as metal caps and cork stoppers.

A Study of

THE election of Geoffrey Heyworth as chairman of the board of Lever Brothers & Unilever, Ltd. a few months ago, climaxing a career of almost 30 years with the Lever organization, is typical in many ways of the changes that the past few years have effected in the British scheme of doing things. The Algeresque jump from "clerk" to "board chairman" is one which Americans have become used to through our years of rapid industrial expansion, but in the more static British set-up such careers have until comparatively recently been much more rare,—with industrial position, like political and social standing, perhaps less dependent upon ability than on entrenched control. Thus in 1912 it might well have appeared beyond the bounds of sober likelihood that a junior clerk in the Lever organization would succeed to the chairmanship of one of the world's greatest mercantile undertakings.

In those days Heyworth was a very minor figure in the Lever organization. Today, from his offices in the vast battleship-like Unilever House, London, he looks out on more than the murk of Blackfriars and the Thames; metaphorically his outlook ranges over the world, for the thousands of diffused interests of the $300,000,000 Lever organization extend to almost every corner of the globe.

What kind of man is Geoffrey Heyworth? His personality is not an easy one to convey. The problem lies, not in analyzing a complex character, but in grappling with a brilliant simplicity. What are the qualities which elevated a junior clerk to that commanding position? First, it might be said that though Heyworth is essentially British in fibre, neither his personal characteristics nor his outlook fall into the broad categories by which most Americans classify Britons. He is no more of the "old-school-tie" type than he is of the orthodox "messenger-boy-to-millionaire" class.

If so individual a person can be said to belong to a stratum at all, then he is of that solid, unostentatious type which, according to students of national psychology, lends such stability to the British character. These people —"the backbone of the country," as they are often called—may never have trodden a plowed field, yet there is something essentially yeoman in their integrity. And in Geoffrey Heyworth's case there is the added reinforcement of Scottish education.

He was born in Cheshire in October, 1894, the third son of Mr. and Mrs. T. B. Heyworth, of Birkenhead, the great ship-fitting port at the mouth of the Mersey. On his father's death, Mrs. Heyworth, a Yorkshire woman, left with a young family to educate on slender resources, decided to send the boys to Dollar Academy, a Scottish school with a famous educational record, with a good democratic intake of "bursaries," in the Scottish way, and a strong Rugger tradition. To help the family purse, she started a school board-

GEOFFREY HEYWORTH...
new Lever Chairman

By Leicester Cotton
London

ing house, and she and her house came to play an important part in the life of the Academy and the Dollar community.

Geoffrey Heyworth entered the Academy in 1905, and during his seven years there undoubtedly absorbed that peculiarly meticulous regard for detail which is no novelty in Scotland but which seems to have been even more emphatic at Dollar Academy. It was a wide education that Heyworth received here, but it was in mathematics, science and languages that he excelled. In his final year he took the William Wilson Memorial Prize: this was for the best all-rounder, generally going to the top boy, and he was a Science Medallist. The academic side of his training was balanced by a reasonable devotion to sport. In Rugby Football he was with the first fifteen for three years, in cricket a member of the first eleven for two years. He also took part in the military training curriculum, and was the Color Sergeant in the Officers' Training Corps. Mr. Heyworth is now a member of the governing body of the school.

When Heyworth came down from Scotland in 1912 he entered the Lever Foreign Department as a clerk and soon showed his value in an extraordinary grasp of the more complicated aspects of accountancy. As audit clerk he was sent to various parts of the Continent in the same year, and later travelled to Canada in the same capacity. Twenty months after he had left school—that is, in May, 1914—he was appointed assistant accountant of Lever Brothers, Ltd., Toronto and Canadian Associated Companies.

War interrupted, but did not halt his steady career. In November, 1915, he joined the 134th Canadian Infantry Battalion (48th Highlanders of Canada) and was soon serving as lieutenant. In England once more, where the battalion was part of the 5th Canadian Division, he was eventually transferred to the 4th Canadian Mounted Rifles which in France was part of the 3rd Canadian Division. A few months before the Armistice he was wounded and in December, 1918, rejoined the Ontario Regimental Depot in England.

At the termination of the war, Heyworth was anxious to take up his career again, and when he was demobilized in Toronto in January, 1919, he little thought that 20 years later he would again be serving, this time as a member of the Home Guard, in England.

After demobilization, Heyworth was appointed assistant to the President in the Lever Toronto office, and in 1921 was General Office Manager, Lever Brothers, Ltd., Toronto and Associated Companies. It was not until January, 1924, that he returned to England as Manager, Overseas Administration Department in the North American Section. Towards the end of that year he married—Miss Lois Isabel Dunlop, of Woodstock, Ontario.

Heyworth's growing ability, in administration was based not so much on a natural talent, *per se*, but on a tightening grasp on the complexities of the various departments themselves. Thus in June, 1925, he was made sales controller of Lever Brothers Limited, Port Sunlight, which played the leading role in the concern's soap activities in Great Britain. By now he had acquired an exceptional knowledge of the manufacturing, marketing and advertising aspects of modern business.

In 1929 he was appointed chairman of the old-established firm of Joseph Crosfield and Sons, Ltd., soapmakers, of Warrington, an associated business which had important interests also in chemical and edible products. Two years later he moved to Unilever House, London, where he became a member of an executive committee of three, managing all soap interests of Lever Brothers, Ltd., in Great Britain. That year he became a managing director. He was then one of the youngest directors in the history of the company.

Geoffrey Heyworth's succession to the chairmanship when Sir F. D'Arcy Cooper died late last year, was, if not inevitable, at least logical: necessity is supposed always to provide the man when faced with the necessity, and Heyworth was undoubtedly such a man.

If any job is a 24-hour-a-day one it is that of the Chairman of Lever Brothers, but that of England's defense is more important. Trite enough as that may seem, the problem—certainly in a minor number of cases—was to persuade the "big shot" that he could be spared from his manifold duties. and

(*Turn to Page 67*)

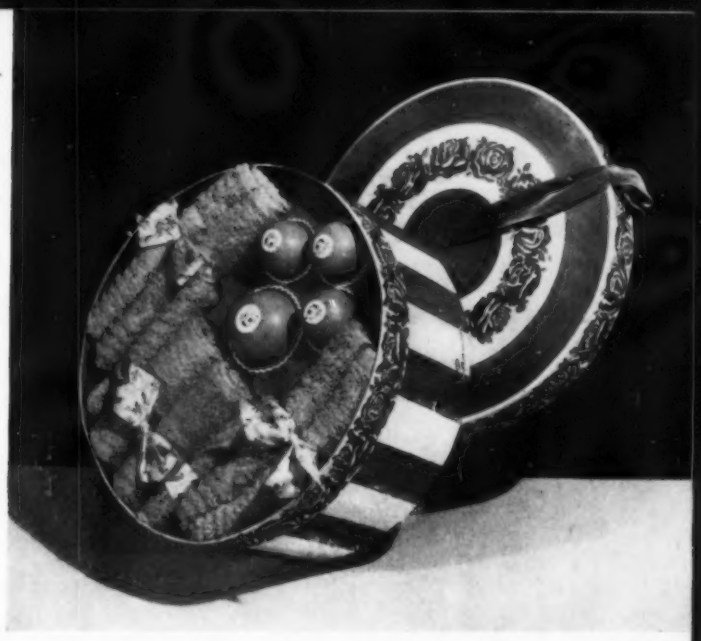
New Products and

A prize-winner in the recent All-America Package Competition, sponsored by Modern Packaging, was the "White Rose" family of products of Canadian Oil Companies, Ltd., Toronto. Other members of the line are liquid soap, livestock and fly spray, similarly packaged.

"Calcium granules" are said to provide the friction in "Cosmata" new combination soap, cold cream, lotion and complexion brush, all rolled into one, now being offered by Cosmata, Inc., Long Island City. 14-oz. jar retails at $1.00.

A Maytime flower garden provided the motif for the new "Spring Rain" line of Charles of the Ritz, New York, which includes a basket containing three cakes of soap, and ten "seed" envelopes of bubble bath powder, as well as packages of dusting powder and cologne.

Packages



A gayly colored hat box holding a set of bath towels clustered around four floral-decorated cakes of guest soap, recent offering of Cannon Mills, Inc., New York, was another prize-winning package design in the 1941 All-America Package Competition.

Pink and blue baby shoes, with the same colors on the package, are one of the latest soap nove ties to come out of the idea factory of Kerk Guild, Inc., New York. Retail price is 60 cents a package.

Castile soap picture blocks, each decorated with fanciful creatures calculated to please the very young, are a recently introduced novelty item of Lightfoot Schultz Co., New York. Attractive box holding 5 cakes—59 cents.

RAW MATERIALS

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iEi

EASTERN INDUSTRIES, INC.

RIDGEFIELD, N. J.

NEWS...

Flett Wins Schoellkopf Medal

For his work on detergents, Lawrence H. Flett, chemist with the Buffalo plant of Allied Chemical & Dye Corp., has just been selected as the 1942 recipient of the Jacob F. Schoellkopf gold medal presented annually by the Western New York section of the American Chemical Society. Mr. Flett's work is in the field of detergents of the higher alkylarylsulfonate type.

Soapmaker Fathers Triplets

The first triplets to be born in Ft. Worth, Texas, in nearly a quarter of a century were recently born to the wife of Horace Ogle, soapmaker at Gillam Soap Works, that city. Mr. Ogle has been with the company since it commenced operations nearly twelve years ago. "An indication that we are at peak production in all departments," reports Earnest O. Gillam, manager. Mr. Gillam promised a $100 gift to "the baby" when it arrived,—but the Stork tripled the ante. "If there'd been five it would have been all the same—$100 apiece," said Mr. Gillam, who, incidentally, was inspired to write a 33-stanza epic poem, dedicated to Marlene, Merline and Maxine Ogle, commemorating the occasion.

MANNING O'CONNOR
. . . new C-P-P vice-president

Soap Employment Index Drops

The index number of employment of wage earners in the soap industry in February dropped off slightly to 91.4 as compared with the January index of 91.5. The February, 1941, index number was 89.8 (3-year average 1923-1925 equals 100). The index number of payrolls of wage earners in the industry rose, however,—from 132.8 in January to 135.6 in February. The February, 1941, figure was reported as 112.6.

C-P-P Elects Vice-Presidents

Horace W. Remington and Manning O'Connor were elected vice-presidents of Colgate-Palmolive-Peet Co., Jersey City, N. J., on April 22. Mr. Remington was named vice-president in charge of foreign operations and re-elected a director of the company, while Mr. O'Connor was elected vice-president in charge of the toilet goods division.

Mr. Remington started in 1911 with B. J. Johnson Soap Co., Milwaukee, which later became The Palmolive Co., and after two mergers, Colgate-Palmolive-Peet Co. He spent 10 years in Australia, leaving there in 1933 as managing director of the subsidiary in that country to become sales and advertising manager of the foreign department with headquarters at the home office.

Mr. O'Connor has been with the company since 1930, first as field sales representative in the toilet goods division, and in 1933 as national sales manager. In 1935, he was made manager of the division in charge of sales and merchandising.

Fire at Humes Soap Plant

An estimated loss of $12,000 was caused by a fire on April 15, at the two-story textile soap plant of Humes Manufacturing Co., East Providence, R. I.

FTC Closes Fels Naptha Case

The Federal Trade Commission has just closed without prejudice its case against Fels & Co., Philadelphia, which had been charged with violation of the FTC Act in connection with the sale of "Fels Naptha Soap Chips." The order closing the case states that the facts were not sufficiently developed to permit a proper determination of the issues and that since the issuance of the complaint the company has adopted a glassine-lined package which may tend to retard evaporation of the naphtha content of its soap chips.

Carman & Co. Earnings Rise

Carman & Co. and its subsidiaries recently reported a net profit for 1941 of $270,724, as compared with the 1940 net profit of $206,573.

HORACE REMINGTON
. . . new C-P-P vice-president

All Quaker Employes Buy Bonds

The employes of Quaker Chemical Products Corp., Conshohocken, Pa., have enrolled 100% in the payroll allotment plan for the purchase of war bonds, the company has just announced. Quaker is currently expanding its production and has just completed construction of a new two-story brick manufacturing plant which was started last September.

Lever Special Offer

Lever Bros. Co., Cambridge, Mass., distributed coupons to Chicago housewives last month entitling them to price discounts on two laundry soaps, "Lux" and "Rinso," an extra cake of either of two toilet soaps, "Lux" and "Swan," and a dish towel with each carton of "Silver Dust" soap powder. A 10 cent discount was also available on "Spry" shortening compound. Total value of the offerings was stated to be 43 cents.

Stops Fictitious Soap Prices

Indianapolis Soap Co. and Williams Soap Co., Indianapolis, were recently ordered by the Federal Trade Commission to cease misrepresentation in connection with the sale of soap. The companies are directed to stop representing, by use of fictitious price marks, that their soaps have retail prices higher than the prices at which they are regularly sold at retail. Also prohibited by the order are claims that soaps containing an excessive quantity of water are of superior quality and that the companies' soaps "open up the pores and give nature the opportunity to function properly."

Oleson 20 Years With Wrisley

Wrisley B. Oleson, president of the Allen B. Wrisley Co., Chicago, was awarded a service pin last month, to mark his twenty years of employment by the company.

Introduces Menhaden Bill

A bill providing for the temporary suspension of the operation of state laws imposing restrictions on menhaden fishing was recently introduced into Congress by Representative Philip A. Traynor, of Delaware. The present need for menhaden products was cited in the bill, use of menhaden oil for glycerine extraction and soap making being mentioned prominently.

DANGER AHEAD! MAY 14!

If somebody slips in a soap golf ball on you at the opening golf tournament of the New York BIMS

on May 14 at the Baltusrol Golf Club, Springfield, N. J.,—blame Martin Schultes of Hewitt Soap, BIMS Chairman. He sent one to each member as a reminder that all New York BIMS will play golf that day, May 14. It looks like a golf ball, feels like a golf ball, but it's soap!

P. & G. Housecleaning Sale

Procter & Gamble Co., Cincinnati, are promoting a "housecleaning sale" by offer of a book "How to Beautify Your Home" for 10 cents and box tops from one each of any five company products. Accompanying the book are five coupons entitling the purchaser to get 30 cents worth of P. & G. soaps free.

Chemists' Club Golf May 21

The annual golf tournament of the Chemists' Club, New York, will be held at the Bonnie Briar Country Club, Larchmont, N. Y. on May 21. The tournament this year will be in charge of W. F. George of Hooker Electrochemical Co., chairman of the club welfare committee. W. J. Weed of Niagara Alkali and Charles Frost of Prior Chemical.

Amend Imports Order M-63

Because General Imports Order M-63 failed in a few instances to keep private purchasers out of foreign markets for critical materials, the order was amended last month to accomplish that result. The original order provided that private persons could not arrange or contract to import materials listed in the order without special authorization. To clarify the question of whether or not the order referred to purchases, the amendment specifically lists "purchase for import" along with arranging or contracting. Additional commodities placed under the order at the same time included babassu nuts, kernels and oil, castor beans and castor oil, and cohune nuts and kernels.

Encourage Domestic Oil Output

The Farm Chemurgic Council, at a recent meeting in Chicago discussed a reported offer by several large soap companies to back a farm program that could supply a replacement for oils high in lauric acid. Castor oil, though not offering any of the desired lauric acid content, would still be a usable soap oil. It could readily be supplied from domestic sources, once U. S. farmers accept it as an everyday crop, it was pointed out. Agricultural experiment stations recommend planting in the area just north of the cotton belt and just south of the corn belt. Rapeseed oil, suitable for making soft soap, has been grown on a small scale in the cotton states and as far north as Minnesota, Wisconsin and Michigan.

ADMA Changes Meeting Place

The American Drug Manufacturers Association will hold its 31st annual meeting at the French Lick Springs Hotel, French Lick Springs, Ind., May 4 to 7. The meeting was originally scheduled to be held at White Sulphur Springs, West Va.

System Products Co. Moves

System Products Co., Chicago, maker of "Kleen-Rite" rug and carpet cleaner, formerly at 537 East 61st St., has just taken new quarters at 6407 South Park Ave.

Await New WPB Orders on Soap Glycerine Content

ORDERS to be issued in the near future by the War Production Board, the industry learned late last month, will limit the residual glycerol content of soaps regardless of what fats are used. It is indicated that the contemplated orders will be even more drastic than general preference order M-60 which applies only to the high lauric acid content oils, and which prohibits their use, after June 1, in the manufacture of soap in which the amount of glycerine left in the resulting product is in excess of 1.5 per cent on an anhydrous soap basis.

According to information received as this was written, the Orders to be issued will require that in boiled settled soap, at least 86 per cent of the glycerol content be recovered (which means, generally speaking, a residual content of not over 0.7 per cent of absolute glycerol in finished soap of 63 per cent fatty acid content); that in liquid, potash, cold-made, and half-boiled soaps, the glycerol content of the finished soap is not to exceed 2.75 per cent on the anhydrous soap basis, which would permit the use of approximately 80 per cent fatty acid and 20 per cent domestic oil; that in mixtures of boiled settled soaps and half-boiled soaps, the glycerol content be not over 2.75 per cent for the half-boiled portion and not over 0.7 per cent for the boiled settled portion, with as large a share as feasible to be the boiled settled portion from which the greater amount of glycerol is recovered. It is also indicated that not more than 60 days will be allowed for changing over to the above basis, and that there will be no exceptions in the Orders for any sizes or types of soap producers.

It is expected that every effort will be required to see that glycerin is concentrated and recovered from all spent lyes, and that full cooperation in this respect is arranged between the various types of producers involved. From crude glycerin of average quality, a minimum conversion of 96 per cent to refined is expected to be required.

In connection with the government drive for greater glycerine production, the Association of American Soap & Glycerine Producers is lending technical workers to the WPB so that information and technical advice may be made available to soap and glycerine producers. Such workers are assured that when needed, manufacturers of fatty acids, glycerine recovery equipment, and glycerine stand ready to assist. These workers will be under the general direction of George A. Wrisley, chief of the soap and glycerine unit of the WPB.

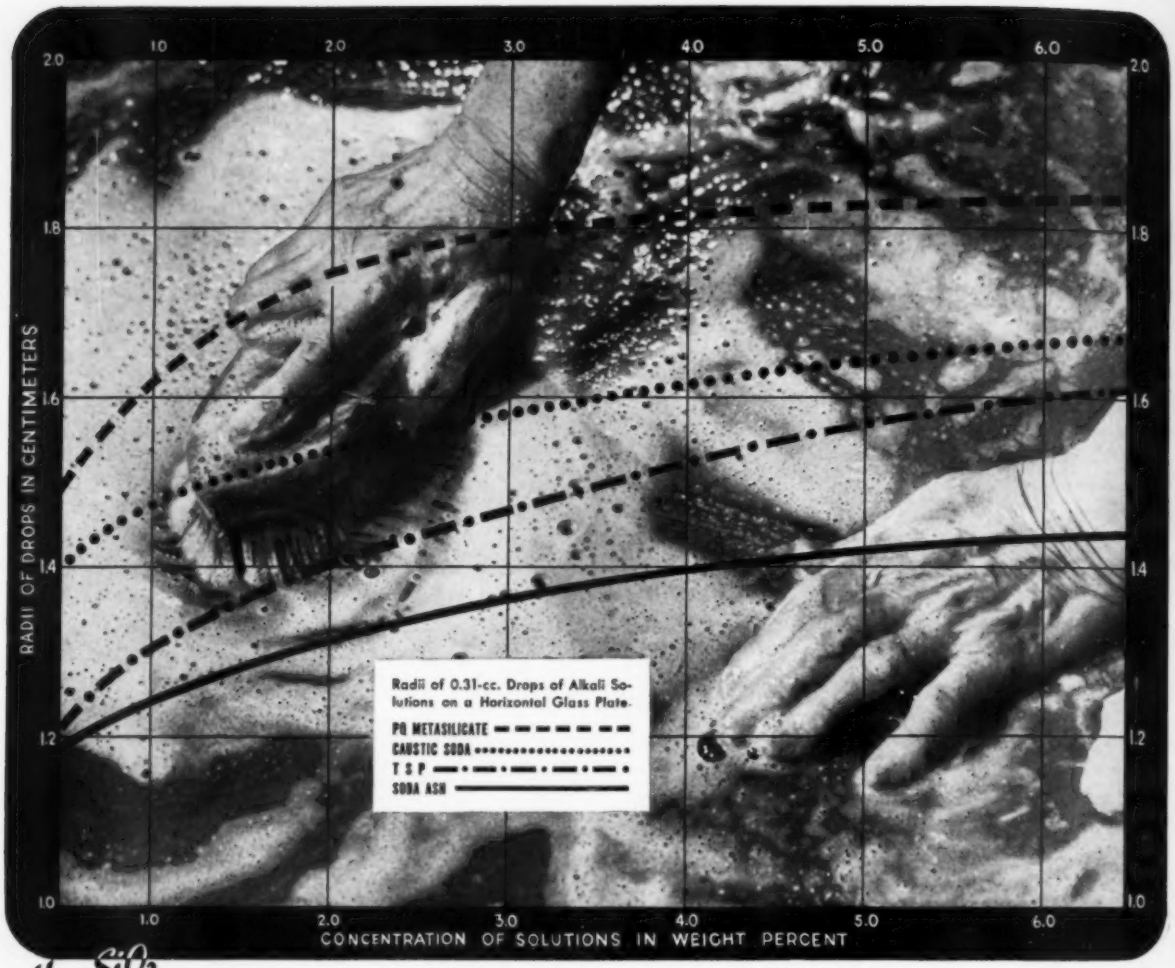
Closely associated with the entire glycerine production effort is the national campaign to salvage household and other waste fats which is expected to be announced shortly by the WPB. A drive conducted throughout the soap industry, as well as among renderers and users of fats in shortening, paints, etc., for pledges toward an advertising fund of nearly half a million dollars has met with a fine response. More than 90 per cent of the total production in the fat-using industries has already pledged support to the campaign. Soap manufacturers have been asked to urge the renderers who supply them to lend their support to the campaign.

◆

TGA To Meet June 16-17

The Toilet Goods Association will hold its annual meeting at the Waldorf-Astoria Hotel, New York, June 16 and 17. Because of the war, no entertainment program is scheduled for the meeting, which is to be devoted solely to business discussions. Names of speakers for the meeting have not yet been announced. Members of the convention committee include: L. R. Root, chairman; A. C. Burgund, Carr-Lowrey Glass Co.; Charles Fischbeck, P. R. Dreyer Inc.; P. E. Haebler, Van Ameringen-Haebler, Inc.; W. E. Klaas, Brass Goods Mfg. Co.; M. Lemmermeyer, Aromatic Products, Inc.; M. F. Martin, U. S. Industrial Chemicals, Inc.; W. P. Murray, Continental Can Co.; Karl Voss, Karl Voss Corp.; J. Blaine Walker, Hazel-Atlas Glass Co., Inc.

A check for over $6,000, representing the proceeds from the annual banquet of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, was turned over to the American Red Cross War Fund of Greater New York at a meeting of the Executive Committee of the Section held April 30 at the India House, New York. The banquet was held last March 12 at the Waldorf-Astoria. Pictured in the presentation group below are (left to right): John C. Ostrom, executive secretary of the section, Victor E. Williams of Monsanto Chemical Co., vice-chairman of the section, Leon Fraser, chairman of the New York Red Cross War Fund, S. B. Penick, Jr. of S. B. Penick & Co., chairman of the section, and Robert B. Magnus, Magnus, Mabee & Reynard, treasurer of the section.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CONCENTRATION OF SOLUTIONS IN WEIGHT PERCENT
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At first contact good detergents must saturate the surface being cleaned. And that's just the action point for the soaps and cleansers built with PQ Silicates.

How very efficiently the soluble silica content increases the ability of water to wet surfaces has been proved repeatedly. The relative wetting powers of aqueous solutions of various alkalis are plotted in the graph shown above.*

In this demonstration a thoroughly cleaned plate glass is laid over a sheet of ruled cross-section paper. Equal volumes (0.31 cc) of the alkaline solutions at a constant temperature are dropped on the glass. The radius of each drop depends on the wetting power of the respective solutions. Note that the curve for the silicate solution is well above those for other alkalis.

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**Baker, C. L.—Ind. Eng. 23, 1025-32 (1931)*

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SILICATES OF SODA

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Merrill Called to Army

Wallace D. Merrill, head of Joseph Turner & Co., Ridgefield, N. J., chemicals, has been commissioned a

WALLACE D. MERRILL

major in the United States Army. He reported April 28 for active duty at Stewart Field, the flying field at West Point, Newburgh, N. Y. Major Merrill is a graduate of West Point. His activities as general manager of the Joseph Turner Company have been taken over by William D. Mullen, who has been president of Eastern Industries, Inc., Ridgefield, N. J., for the past eight years. Prior to his association with Eastern Industries, Mr. Mullen was a director of Welch, Holme & Clark Co., New York, with which company he was connected for about 20 years.

M. Ernest Clark Dies

M. Ernest Clark, formerly a member of the firm of Welch, Holme & Clark Co., New York, died last month at Orlando, Florida, following an illness of three months. He was 72 years of age. Mr. Clark retired from business about ten years ago and took up his residence in Florida. He had his winter home in Winter Park, Fla.

Camp of Monsanto to Retire

G. Lee Camp, vice-president of Monsanto Chemical Co., St. Louis, last month announced his intention to retire on June 30. Mr. Camp is also a member of the board of directors and co-general manager of the organic chemicals division of the company. He joined Monsanto 12 years ago, after 30 years with Dow Chemical Co., Midland, Mich. At the time he left Dow he was general manager in charge of sales and distribution of all Dow products. Mr. Camp plans to occupy his future with growing and marketing citrus fruits in Florida.

Charles S. Welch Dies

Charles S. Welch, executive secretary of the Toilet Goods Association, died April 26 in St. Elizabeth's Hospital, New York, after an illness of a few days. He was born in Marysville, Ont., 59 years ago. Before joining the T.G.A., Mr. Welch had held several executive positions with cosmetics firms, including the posts of manager of the toilet goods department of Park & Tilford, vice-president and general manager of Helena Rubenstein, Inc., vice-president and general manager of Houbigant, Inc., and executive secretary under N.R.A. of the Toilet Goods Code Authority.

Chi. Assn. Has Barter System

The Chicago Perfumery Soap & Extract Association recently inaugurated a barter and exchange department to assist its members in securing scarce raw materials. The department, for the exclusive use of its members, is operated on a non-profit basis. Acting as a medium of contact, the association proposes to publish at regular intervals lists of items needed by various members and lists of materials members are willing to offer in exchange.

British Soap Rationing Effects

Rationing of soap in Great Britain is likely to result in a 20 per cent reduction in consumption of oils and fats by soap makers,—of which upwards of 300,000 tons per year are normally used. Some chemicals, however, will be required in larger amounts. An increased demand has already been noted for soda ash and other water softeners. The general tendency is to reduce the fat content of soaps in favor of chemical and mineral abrasives. Industrial users of soap have not been forced to curtail their consumption, but are receiving allocations on the basis of their use during the preceding six months. *Canadian Chemistry & Process Industries* 26, 145 (1942).

George Joins Hooker Co.

William F. George, associated with *Chemical Industries* since 1928, has just joined the New York sales

WILLIAM F. GEORGE

organization of Hooker Electrochemical Co., Niagara Falls, N. Y. Mr. George is in charge of the New York office. He was at one time affiliated with the Hooker Company at its Niagara Falls plant, and later in its New York sales office. He left in 1919 to organize the firm of W. F. George Chemicals, Inc., now known as George Chemical Co., which business he conducted until 1928.

Jack Dorland in Army

Jack A. Dorland, in charge of sales of aromatic chemicals in the New York territory for the Dow Chemical Company, Midland, Mich., has just been commissioned a lieutenant in the U. S. Army, chemical warfare division. Mr. Dorland reported for active duty in the New York district April 25

Allan Mills Joins Quaker

Allan d'Apery Mills, formerly associated with Rohm & Haas Co., Philadelphia, has just joined Quaker Chemical Products Corp., Conshohocken, Pa., as an organic research chemist.

Felton Moves Offices

The Philadelphia branch office of Felton Chemical Co., Brooklyn, was recently moved to a new address at 3552 North 16th St. Former address of the office was 15 Lombard St.

U.S.I. ALCOHOL NEWS

May ★ A Monthly Review of Technical Developments for Chemists and Executives ★ 1942

New Essential Oil Sources Sought in U.S., Latin America

Goal is Increased Production Of Domestic Natural Materials

While perfume chemists have been amazingly successful in developing synthetic materials to replace imported essential oils, supplies of certain of these synthetics are being limited by raw material shortages, and as a result interest is being focused on the possibility of producing natural essential oils from trees and plants grown in near-by localities.

Interesting possibilities are offered, for example, by the cedar tree. Oil of cedar leaf is now being used in tincture of green soap and, in addition, an oil distilled from the cedar wood itself is being commercially produced in this country for use in perfumes, cosmetics, and soaps.

Some of the less well known essential oils are also attracting new interest under present conditions. A paracoto bark oil, originating in Bolivia, may be useful in heavy compositions and in soap. Saffron oil, which has been prepared from fresh saffron by extraction first with petroleum ether and then with ethyl ether, might be used in finer perfumes.

Steps are being taken also to supplement supplies of other materials for the manufacturers of drugs, cosmetics, and related products. Production of babassu nut oil is being developed in Brazil as a possible replacement for coconut and palm oils in soap. Synthetic camphor is being produced in America's turpentine belt. An extensive program of belladonna planting will be undertaken soon.

Some of the other developments already described in U.S.I. ALCOHOL NEWS include coffee blossom oil, suggested as a replacement for jasmin, mimosa, and other delicate blends; oil of hops from domestic sources; and pine oil produced from gum turpentine.

Properties of Ethyl Formate Lead to Wide Variety of Uses

U.S.I. Product is Employed in Pharmacy, in the Fumigation of Tobacco and Foods, and in Synthesis of Many Products

The unusual physical, physiological, and chemical properties of ethyl formate have resulted in a very wide range of applications for this U.S.I. product in the pharmaceutical, food, tobacco, and organic chemical industries. Among its outstanding characteristics are its analgesic, anti-spasmodic, and rubefacient properties, its efficacy as a larvicide, and its chemical reactivity.

Its applications in pharmacy include administration in liquid form as a remedy for diarrhea; in vapor form as an inhalant; and externally as a rubefacient.

Use as Larvicide

In the food and tobacco industries, its chief interest lies in the fact that, in addition to being an excellent larvicide and fumigant, it evaporates completely, leaving no residual odor. For this reason, it can be successfully employed on the packing line for the fumigation of individual packages.

In Chemical Synthesis

Some of the most interesting chemical reactions of ethyl formate are its condensations with other esters in the presence of sodium ethoxide (sodium ethylate). A typical case is its reaction with ethyl beta-ethoxypropionate to give ethyl alpha-formyl-beta-ethoxypropionate, an intermediate in the preparation of Vitamin B_1.

Other reactions of this type are: with ethyl succinate to give ethyl formylsuccinate; and with ethyl acetate in the presence of metallic sodium in benzene to give the sodium compound of ethyl formylacetate.

Reactions with Ketones

Similarly, ethyl formate may be condensed with ketones in the presence of sodium ethoxide to give hydroxymethylene ketones (also known as beta-ketoaldehydes). For example, with acetone there results the sodium compound of hydroxymethylene-acetone, from which may be obtained triacetylbenzene, 3-methyl-pyrazole, and methylisoxazoles.

Other Reactions

Miscellaneous reactions of ethyl formate include:

With anhydrous ammonia in ethyl alcohol to give formamide.

With ethylmercaptan and hydrochloric acid to give ethyl ortho-thioformate.

With hydrazine to give formylhydrazine (from which triazole may be obtained) and diformylhydrazine.

U.S.I. will gladly give additional information on the properties of ethyl formate.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

A new hand cream is especially designed for removing ink stains, particularly those of hectograph ink, according to the maker. It is said to cleanse the skin quickly and easily, leaving it soft and moist. **(No. 570a)**

A drum carrier is reported suitable for placing 55-gallon drums on skids, or for removing them. In addition, to permit easy moving of the drums from one place to another, the carrier is adapted for lifting them 14 inches above the floor. **(No. 571a)**

A new synthetic essential oil is said to duplicate the odor characteristics of natural Ylang Ylang with exceptional fidelity, and to be suitable as a replacement product for Cananga also. **(No. 572a)**

New work gloves are described as being made of a synthetic plastic that is inert, non-toxic, odorless, and tasteless. Maker says that the material is not subject to aging or to attack by acids, alkalis, alcohol, hydrocarbons, or oils. **(No. 573a)**

A non-removable cap for collapsible tubes is said to permit accurate control of flow of such materials as shaving creams or dentifrices. Cap is provided with a valve so constructed that it is moved toward or away from the dispensing opening by turning the cap. **(No. 574a)**

Collapsible tubes made of non-metallic materials are now undergoing test by a leading tooth paste manufacturer, it is reported. It is believed that the tubes may be made available to other manufacturers during the present shortage of metal for tubes. **(No. 575a)**

The cedar tree and the coffee blossom are among the newer sources of essential oils which are attracting interest in the perfume, cosmetic, and soap industries.

U.S.I. INDUSTRIAL CHEMICALS, INC.

60 EAST 42ND STREET, NEW YORK — CHEMICALS: INDUSTRIAL, ANTI-FREEZE; SOLVENTS: ALCOHOLS — USI SERVICE TO INDUSTRY — BRANCHES IN ALL PRINCIPAL CITIES

Soap Making in Colombia

ALTHOUGH most South American soap manufacturers have little in the way of modern equipment, the quality of the soaps which some plants produce is quite amazing to soap men from the United States who visit these factories. Small kettles heated with direct fire, materials added to and removed from kettles and tanks by hand ladeling, hand chipping and air drying of soap chips in open racks, crude raw materials, no chemical control or chemical knowledge,—these are the things which characterize many of the smaller plants, and yet the quality of the soap, both laundry and toilet, is far better than might be expected and compares in many instances favorably with soap made in the few large plants or imported.

The accompanying views were taken at the plant of the Noli Soap Company at Barranquilla, Colombia. The entire plant is actually outdoors and only covered with an iron shed. This plant makes brown laundry soap and also toilet soaps, included a milled soap. The raw materials are local tallow, cottonseed foots and coconut oil. The photos show the fire boxes for direct heat, lower left, the top of the largest kettle (about 12 feet high), directly below, a general view of the plant layout, center, and the trays used for sun drying on the factory roof, lower right.

Soap making in the open air at the plant of Noli Soap Co., Barranquilla, Colombia.

BACKGROUND VALUES . . . a PART of the product, APART from the price

SUB-STANDARD or adulterated materials could never elude the vigilance of our Control Laboratories. Here sample lots of all materials entering our plant or processed by our factory are carefully checked and double-checked before their release for compounding or for general sale.

Several of the assays employed—acetylation, saponification and titration—are illustrated in the order mentioned. These procedures are important in estimating the percentage of certain constituents (the aldehydes, ketones and esters), in determining the acid value of essential oils, and in checking the conformity

of an oil of undetermined grade with the accepted specifications of a given standard. Acetylation is used in determining the percentage of alcohol (menthol in peppermint oil; geraniol in citronella, etc.); saponification is used in conjunction with titration for ester determinations; titration is used for determining acid values, ester values and the aldehyde content of a given oil.

These are but a few of the checks by which variation of F.B. products is reduced to the narrowest possible margin . . . another FRITZSCHE feature, a PART of its products, APART from their price!

FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

Headquarters for
ESSENTIAL OILS • FLAVORS
• AROMATIC CHEMICALS •
PERFUME RAW MATERIALS

Warns Canadian Soapers

Soap manufacturers of Canada have been warned by the Oils and Fats Administrator of the Wartime Prices and Trade Board of the Canadian Government that unless they recover their glycerine, supplies of oils and fats will be denied them. Most of the small manufacturers of soaps in Canada produce cold, semi-boiled and other soaps where no glycerine is recovered. In the Province of Quebec, it is stated that no glycerine is produced as a result of soap manufacturing operations. According to a report from Ottawa, Mrs. Phyllis G. Turner, Fats and Oils Administrator, located in the Bureau of Mines Building, stated recently that Canada is producing too much soap and too little glycerine, and that soap manufacturers must see to it that this condition is corrected or they will be denied supplies of fatty raw materials.

Colgate Profits Top $6,000,000

Colgate - Palmolive - Peet Co., Jersey City, N. J., and its subsidiaries in the western hemisphere earned net income of $6,604,891, or $3.09 a common share, in 1941, E. H. Little, president, recently reported. Domestic income accounted for $5,801,526 and foreign for $803,365. Dividend income and profits from subsidiaries and branches outside the hemisphere, amounting to $535,584, were added to the reserve for contingencies. On the same basis, 1940 earnings would have been $3,824,801, or $1.62 a common share. Net sales were at an all-time high of $105,405,550, surpassing 1939 sales of $101,935,438, when all the company's subsidiaries and branches, except those in Germany, Italy, and Poland, were included in the consolidation.

DeWitt Thompson in Navy

DeWitt W. Thompson, assistant general manager of sales, Mathieson Alkali Works, New York, has been commissioned a lieutenant, senior grade, in the U. S. Naval Reserve, aviation section. He reported for active duty at Quonsett Point, R. I., April 15. Mr. Thompson was given a farewell luncheon at the Chemists' Club, New York, before he left. He was president of the Salesmen's Association of the American Chemical Industry in 1940, and has been with the Mathieson company since 1930.

SADDLE SOAPS

Interest in saddle soaps has been stimulated sharply by the war. The soldier in the field requires a reliable cleaning agent for the dozens of items of leather equipment, particularly saddlery and harness, that still find use in spite of the trend toward mechanization. English soap makers have always excelled in this field, and we turn to a British author, Paul I. Smith, for an article on the subject scheduled for our next issue.

Col. Kuhn Addresses Salesmen

Lieut.-Col. H. A. Kuhn, commanding officer, New York district, of the chemical warfare service, U. S. Army, was the main speaker at the April 16 dinner meeting of the Salesmen's Association of the American Chemical Industry, held at the Chemists' Club, New York. Col. Kuhn spoke on the part the chemical industry is playing in the national war effort, tracing its development over the past year and discussing the progress that is expected to be made in the future.

New Solvent Line

A versatile new nonflammable solvent is being marketed by Great Northern Chemical Co., Oak Park, Ill., primarily as a replacement for toluene. It is being sold under the name "Kleenal," for dry cleaning, "Leather-Sol," for degreasing hides, and "Polusol," for polishes.

Matthiessen on T. A. G. Board

E. P. Matthiessen, president of the Nyal Co., Detroit, has been elected a member of the board of the Toilet Goods Association to fill the vacancy caused by the resignation of George A. Wrisley, who is now chief of the Soap and Glycerine branch of the War Production Board.

P. & G. Quarterly Earnings Off

Procter & Gamble Co., Cincinnati, recently reported net income for the quarter ended March 31, of $6,037,308, equal to 92 cents a common share. This compares with net income of $7,166,041, or $1.09 a common share for the like quarter in 1941. The company's investment in the Philippines, according to the report, was $3,000,000, including undistributed surplus as of June 30, 1941. For the nine-month period ended March 31, 1942, indicated net income was $19,052,613, equal to $2.09 a common share, as compared with net income of $16,776,068, or $2.55 a share for the same period in the previous year.

OPA Frowns on Home Soap

Both the Office of Price Administration and the War Production Board came out definitely against home soap-making last month, giving wide publicity to their attitude through releases to newspapers. "Not only is there sufficient soap in this country to meet all needs," the consumer division of the OPA stated, "but the heavy demand for glycerin, . . . makes home soap-making almost an unpatriotic conservation move." The division brought out that it is far better for the housewife to turn her kitchen fats into the soap plant, where the glycerin can be extracted, than for her to waste it by making soap at home. Reinforcing this statement, industrial conservationists from the WPB pointed out that the term conservation in this field applies to glycerin rather than soap itself. Moves to increase home soap-making which have been reported throughout the country were said to be the result of misguided advice and had not been recommended by either OPA or the WPB.

New Chlorine Supply

The supply of chlorine may be augmented significantly in the near future by the new magnesium metal industry at installations such as that being erected at Lake Charles, Louisiana, in conjunction with the ammonia-soda operations of the Mathieson Alkali Works and by The Dow Chemical Co. in Texas.

Boat Overboard!

Tough on the floor? Don't worry. This linoleum can take it!

It's protected by White Sail Floor Wax... the waterproof "self-shining wax"... sold by the A. & P. Food Stores and A. & P. Super Markets.

White Sail Floor Wax "protects and preserves" according to the message on the can... A Crown Can. And what the maker says about the product within, may be said with equal truth about the container!

The Crown Can "protects and preserves" White Sail Floor Wax... not to mention presenting it so attractively to the buying public that it has become one of the fastest selling floor finishes on the market today.

The Crown organization is at your service... now and always... ready to work with you and for you in the interest of better packaging for your products.

CROWN CAN COMPANY, PHILADELPHIA, PA., *Division of Crown Cork and Seal Company.*
New York • Baltimore • St. Louis • Houston • Madison • Orlando • Fort Wayne • Nebraska City

INDEPENDENT AND HELPFUL **CROWN CAN**

CONTRACTS AWARDED

Soap Bids

In a recent opening by the Treasury Procurement Department, Washington, D. C., H. Kohnstamm & Co., New York, submitted low bid on 143,147 lbs. of laundry soap at 10.22c a lb.; S. & S. Soap Corp., Brooklyn, N. Y., was low bidder on 15,625 lbs. of grit soap at 4.2c a lb.; Stahl Bros. Corp., Buffalo, was the only bidder on 12,600 lbs. of toilet soap at 23c a lb.; National Milling & Chemical Co., Philadelphia, Pa., submitted the low bid on 120,000 lbs. of chip soap at 10.44c, while J. Eavensson & Son, Camden, N. J., submitted a low bid of 9.87c a lb. on 80,000 lbs. of the total 120,000 lbs. of chip soap.

Panama Canal Bids

The following low bids were submitted in a recent opening for miscellaneous supplies at Washington, D. C., for the Panama Canal: Stevens Soap Corp., Brooklyn, N. Y., 40,000 lbs. of trisodium phosphate at $2,148 and 8,000 lbs. scouring powder at $320; H. Kohnstamm & Co., New York, 10,000 lbs. of chip soap at $1,050; Newell-Gutradt Co., San Francisco, 2,500 lbs. of grit soap at $170; Pioneer Soap Co., San Francisco, 45,000 lbs. of laundry soap at $2,790; Colgate-Palmolive-Peet Co., Jersey City, N. J., 30,000 lbs. of salt-water soap at $1,500 and 80,000 lbs. of soap powder at $3,656; Procter & Gamble Distributing Co., Baltimore, 7,500 lbs. of white floating toilet soap at $950 and 23,000 cakes of white floating toilet soap at $375.76.

Post Office Bids

In a recent opening by the Post Office Dept., Washington, D. C., the following low bids were received: Eagle Soap Co., Brooklyn, N. Y., 1,650 lbs. of grit cake soap at 4c a lb. and 7,013 lbs. of grit soap at 4c a lb.; Wonder Chemical Co., Brooklyn, N. Y., 10,008 lbs. of metal polish at $6.58c a lb.; Chemical Manufacturing & Distributing Co., Easton, Pa., 240,000 lbs. of soap scouring compound as follows: 144,000 lbs. at 1.67c a lb., 48,000 lbs. at 1.86c a lb., 24,000 lbs. at 2.53c a lb., and 24,000 lbs. at 5.06c a lb., f.o.b. various destinations; Fischer Products Corp., Washington, D. C., 48,000 lbs. of soap scouring powder compound in two lots of 24,000 lbs. at 2.8c and 2.9c a lb., f.o.b. various destinations.

Treasury Procurement Awards

The Treasury Procurement Department, Washington, D. C., issued the following contract awards, in a recent opening for miscellaneous supplies: Ampion Corp., Long Island City, N. Y., 2,750 gals. of liquid cleaner at 35c a gal.; Stahl Bros., Buffalo, N. Y., 27,000 lbs. milled toilet soap at 12.48c a lb.; M. J. Gensberg & Son, 50,000 lbs. of sweeping compound at 1.2c a lb.

Treasury Procurement Bids

Wonder Chemical Co., Brooklyn, N. Y., submitted the low bid on 500 cans of metal polish at 8.97c a can, in a recent opening for miscellaneous supplies by the Treasury Procurement Dept., Washington, D. C. In the same opening Magitex Co., Saco, Me., submitted the low bid on 500 lbs. of cleaning compound at 16c a lb.

Water Softener Bid

In a recent opening by the Veterans Administration Procurement Division, Washington, D. C., N. Brittingham & Sons, Philadelphia, submitted the low bid on 1,000 lbs. of water softener at 4.9c a gallon.

Navy Bids

In a recent opening for miscellaneous supplies by the Navy Department for various yards, the following low bids were submitted: Golgate-Palmolive-Peet Co., San Francisco, 128,000 lbs. of salt water soap at 6.24c a lb., and 128,000 lbs. of salt water soap at 6.17c a lb.; Colgate-Palmolive-Peet Co., Jersey City, N. J., 228,000 lbs. of olive oil-soda soap at 11.22c a lb., and 12,000 lbs. of olive oil-soda soap at 13.45c a lb.

Rust Preventive Bid

In a recent opening for miscellaneous supplies at Washington, D. C., for Panama Canal, R. M. Hollingshead Corp., Camden, N. J., submitted the low bid on 500 gals. rust preventive compound at $396.30.

Panama Canal Bids

The following low bids were submitted in a recent opening at Washington, D. C., for miscellaneous supplies for Panama Canal: Magnus Chemical Co., Garwood, N. J., 2,000 lbs. cleaning compound, $185; Tide Water Associated Oil Co., San Francisco, 5,000 lbs. rust preventive compound, $200.

Army Commends Victor Employes

The employees of Victor Chemical Works, Mt. Pleasant, Tenn., were commended last month in a congratulatory radiogram from the U. S. Army for their work in producing and delivering white phosphorus for the chemical warfare service.

Felton Man Talks on Perfumes

Frank Spitaleri, perfumer for Felton Chemical Co., Brooklyn, delivered a talk on "Organic Chemistry in the Perfume Field" before a large group of the Cooper Union Alumni Association, April 6.

Ninol Laboratories Move

Ninol Laboratories, Chicago, detergents and wetting agents, have just moved their office and plant to 638 S. Federal St. Former address of the company was 510 N. Dearborn St.

Correction

New Brunswick Laboratories, Inc., are located at 110 Beekman St., New York, not in Newark, N. J., as was incorrectly stated on page 45 of the April issue of *Soap & Sanitary Chemicals*.

YOU CAN IMPROVE ON NATURE

Nature has always been an excellent teacher for those engaged in the manufacture of synthetic aromatic chemicals. Through her, many profound secrets have been divulged, a multitude of problems answered.

Yet, in an unending quest for perfection, scientists and perfumers have come to know that even Nature is not perfect. Few natural oils are entirely stable. Some will not even stand isolation from the living blossom and nearly all natural products show variation in their odor quality—fluctuating from crop to crop.

Synthetic Aromatics, on the other hand, live up to the most rigid specifications. They enable the experienced perfumer to rely on his formulation once and forever. Moreover, they inspire him with entirely new ideas. With their help, the perfumer of our day creates many delightfully different fragrances—"floral" odors Nature never knew.

Right now interesting new aromatics are undergoing severe tests in the Dow laboratories. They hold encouragement and promise for the future—new products of exceptional merit.

DOW *Synthetic Aromatics*

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York City · St. Louis · Chicago · San Francisco · Los Angeles · Seattle · Houston

NEW TRADE MARKS

The following trade-marks were published in the April issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

EEE-ZEE-WASH—This in solid letters describing washing powder. Filed by Joseph Shepard, Wilmington, N. C., Feb. 17, 1940. Claims use since Dec. 17, 1937.

DIXIE WHITE—This in outline script lettering describing cleaning preparation. Filed Nov. 18, 1941, by Dixie White Washing Fluid Co., Newark, N. J. Claims use since Sept. 1, 1937.

MIRACLE FOAM—This in solid lettering describing cleaning preparation. Filed by H. R. Davi Co., Oakland, Calif., Dec. 29, 1941. Claims use since Feb. 5, 1933.

FUL DEFENSE—This in script lettering describing disinfectants. Filed Jan. 6, 1942, by Fuld Bros., Baltimore. Claims use since November, 1941.

PHENALCO—This in solid letters describing germicide. Filed Feb. 6, 1942, by Chicago Pharmacal Co., Chicago. Claim use since Mar. 12, 1935.

Q—The letter "Q" describing leather polish. Filed by K. J. Quinn & Co., Inc., Boston, Dec. 15, 1941. Claims use since Jan., 1909.

FLOOR-SAN—This in solid letters describing floor soap. Filed Jan. 15, 1942, by Huntington Laboratories, Inc., Huntington, Ind. Claims use since June, 1925.

FLIGO—This in solid lettering describing fly spray. Filed by Hazel Adams, Coffeville, Kans., June 18, 1940. Claims use since Apr. 12, 1936.

NO-CLOR—This in outline letters describing washing compound. Filed by H. Kohnstamm & Co., New York, Jan. 28, 1942. Claims use since Jan. 2, 1942.

LIQUID WRENCH—This in solid lettering describing rust remover. Filed by Radiator Specialty Co., Charlotte, N. C., Sept. 8, 1941. Claims use since Aug. 18, 1941.

RINCENE—This in solid lettering describing liquid cleaner. Filed by John H. Breck, Inc., Springfield, Mass., Dec. 17, 1941. Claims use since Nov. 1, 1941.

BUG-NO—This in solid lettering describing insecticide. Filed by Plunkett Chemical Co., Chicago, Feb. 3, 1942. Claims use since June 1, 1920.

RAT-NO—This in solid letters describing rodenticide. Filed by Plunkett Chemical Co., Chicago, Feb. 3, 1942. Claims use since June 1, 1920.

SHU-SHINE—This in solid letters describing liquid cleaner. Filed by Osmic Chemical Co., Brockton, Mass., May 9, 1940. Claims use since 1938.

7-70-7—This in solid numerals describing insecticides. Filed by Stanley Home Products, Inc., Westfield, Mass., Jan. 6, 1942. Claims use since May, 1937.

ROTEX 75 DUST—This in solid letters describing insecticide spray. Filed by Miller Chemical & Fertilizer Corp., Baltimore, Jan. 15, 1942. Claim use since Dec. 1, 1941.

AMERICE—This in script letters describing antiseptic mouth wash. Filed by Marshall Field & Co., Chicago, Jan. 26, 1942. Claims use since 1911.

AMOCO—This in outline letters within oval emblem describing insect spray. Filed by American Oil Co., Baltimore, Md., Feb. 16, 1942. Claim use since Oct. 7, 1930.

DIRT-FOE—This in solid letters describing chemical cleaner for painted surfaces. Filed by Jay Rose, New York, Dec. 8, 1941. Claims use since Oct., 1940.

QUINTONE—This in solid letters describing leather cleaner and polish. Filed by K. J. Quinn & Co., Boston, Mass., Jan. 5, 1942. Claims use since Dec. 2, 1942.

DAREDEVIL—This in solid letters describing soap. Filed Jan. 9, 1942, by Lehn & Fink Products Corp., Bloomfield, N. J. Claims use since Oct. 15, 1941.

CHAUNCEY B. DAVIS—This as signature describing shampoo. Filed by Chauncey B. Davis Manufacturing Co., Jackson, Miss., Oct. 28, 1941. Claims use since Sept. 22, 1941.

ORLIS—This in outline letters describing tooth paste. Filed by Valentine Laboratories, Inc., Chicago, Jan. 1, 1942. Claims use since June 10, 1930.

B-1956—This in solid lettering describing chemical preparations for insecticides, fungicides, and softening and cleaning agents. Filed by Rohm & Haas Co., Philadelphia, Feb. 4, 1942. Claims use since Jan. 7, 1942.

MATA CHINCHES INSECTICIDE—This in solid lettering over a fanciful representation describing insecticides. Filed by California Pharmacal Co., Los Angeles, Aug. 5, 1941. Claims use since July 1, 1925.

CREMOLINE — This in outline letters describing disinfectants and chemical pipe cleaner. Filed by Louis C. Traband Co., East St. Louis, Ill., Nov. 18, 1941. Claims use since 1890.

WIL—This in solid letters on representation of woman hanging out clothes describing soap flakes. Filed by Chas. W. Young & Co., Philadelphia, Aug. 30, 1941. Claims use since July 24, 1941.

KING PINE—This in outline script letters over representation of pine tree describing disinfectant. Filed by Joseph Uddo, Johnson Chemical Co., Brooklyn, N. Y., Apr. 28, 1941. Claims use since Feb. 25, 1941.

AJAX—This in solid letters under representation of owl describing anti-rust compounds. Filed by Commercial Solvents Corp., New York, July 28, 1941. Claims use since June 13, 1941.

MICROCIDE—This in solid letters within oval describing athlete's foot preparation. Filed by Drug Guild, Inc., New York, Dec. 24, 1941. Claims use since Mar. 1, 1936.

Norda

Scarcity of floral oils . . .

Present dwindling supplies of natural floral essences emphasize the value of high quality substitutes.

Synthetic floral essences can be used to replace the natural oils with full satisfaction and marked success in numerous products,—toilet soaps, shampoos, shaving creams, powders, creams, and many others.

In fact, in many products the newer synthetic floral essences are to be *preferred* for the manner in which they reproduce the true fragrance of the living flowers in the finished product,—not to mention uniformity of quality and odor fidelity, and their economy under present conditions.

Let us tell you more about these newer substitutes as an answer to the growing scarcity of natural floral oils.

NORDA Essential Oil and Chemical Co., Inc.

Chicago Office
325 W. Huron St.

St. Paul Office
253 E. 4th St.

New York Office
601 West 26th St.

Los Angeles Office
2800 E. 11th Street

Toronto Office
119 Adelaide St., W.

Montreal Office
135 Commissioners St., W.

PERM-ASEPTIC — This in solid letters describing germicide. Filed by Leo Jack Rampel, Perm-Aseptic Co., New York, Feb. 5, 1942. Claims use since Nov. 3, 1941.

ROSUL—This in solid letters describing insecticides. Filed by Central Chemical Corp. of Maryland, Hagerstown, Md., Feb. 20, 1942. Claims use since Nov. 17, 1942.

GEM—This in outline letters over representation of jewel describing shoe cleaner. Filed by Consolidated Royal Chemical Corp., Chicago, Feb. 14, 1941. Claims use since Oct. 26, 1940.

P & C—This in reverse letters on circle describing disinfectant cleaner and soap. Filed by W. H. Plunkett, Plunkett Chemical Co., Chicago, Feb. 3, 1942. Claims use since June 1, 1910.

RENOVENE—This in solid letters describing cleaning compound. Filed by W. H. Plunkett, Plunkett Chemical Co., Chicago, Feb. 3, 1942. Claims use since June 1, 1910.

VERDANT—This in solid letters describing soaps. Filed by Armour & Co. of Del., Chicago, Ill., Feb. 6, 1942. Claims use since May 21, 1941.

GRAMERCY—This in solid letters describing soap. Filed by Gimbel Bros., Inc., New York, Feb. 19, 1942. Claims use since Feb. 1, 1942.

GAY DIVORCEE—This in script letters over representation of dancer describing shampoos. Filed by Harry D. Koenig, Anre, New York, Dec. 22, 1941. Claims use since Dec. 1, 1941.

COPPA-TONE — This in solid letters describing insecticides. Filed by John Lucas & Co., Philadelphia, Jan. 15, 1942. Claims use since Mar. 13, 1936.

KIL-TONE—This in solid letters describing insecticides. Filed by John Lucas & Co., Philadelphia, Jan. 15, 1942. Claims use since January, 1913.

DED-END—This in outline letters over representation of roach, describing roach powder. Filed by Odoredo Pentuff, Tampa, Fla., Feb. 14, 1942. Claims use since May, 1939.

Trade Marks Granted

394,034. Chemical wood preservatives. Filed Feb. 13, 1941, James Carr, Savannah. Serial No. 440,618. Published Jan. 6, 1942. Class 6.

394,052. Disinfectant. Filed by John Carle & Sons, Inc., New York, Aug. 7, 1941. Serial No. 446,042. Published Jan. 6, 1942. Class 6.

394,053. Athlete's foot salve. Filed by Delrose Laboratory. Morton Grove, Ill., Aug. 22, 1941. Serial No. 446,464. Published Jan. 6, 1942. Class 6.

394,085. Automobile polish & cleaner. Filed Oct. 23, 1941, Flare Laboratories, Chicago. Serial No. 448,028. Published Jan. 6, 1942. Class 16.

394,107. Bubble foam powder. Filed Nov. 12, 1941, by House of Tre-Jur, Inc., New York. Serial No. 448,558. Published Jan. 6, 1942. Class 6.

394,304. Bactericidal preparations. Filed Oct. 13, 1941. Rigidtest Products, Inc., Chicago. Serial No. 447,767. Published Jan. 13, 1942. Class 6.

394,343. Bubble foam powder. Filed Nov. 12, 1941. Tre-Jur, Inc., New York. Serial No. 448,559. Published Jan. 13, 1942. Class 6.

394,373. Medicated sulphur soap. Filed Nov. 29, 1941. Cosmata, Inc., Long Island City, N. Y. Serial No. 449,040. Published Jan. 20, 1942. Class 4.

394,381. Shampoo. Filed Dec. 5, 1941. Benfu Lotion Co., New York. Serial No. 449,201. Published Jan. 13, 1942. Class 6.

394,543. Insecticide. Filed April 26, 1941. U. S. Rubber Co., New York. Serial No. 443,027. Published July 1, 1941. Class 6.

394,553. Germicide. Filed Aug. 7, 1941. Mizzy, Inc., New York. Serial No. 446,060. Published Nov. 18, 1941. Class 6.

394,578. Motor flushing and cleaning compound. Filed Oct. 31, 1941. White & Bagely Co., Worcester, Mass. Serial No. 448,310. Published Feb. 3, 1942. Class 6.

394,582. Kaolin cleaner. Filed Nov. 8, 1941. Southeastern Clay Co., Aiken, S. C. Serial No. 448,484. Published Feb. 3, 1942. Class 4.

394,587. Metal cleaning compound. Filed Nov. 12, 1941. Turco Products, Inc., Los Angeles. Serial No. 448,593. Published Feb. 3, 1942. Class 4.

394,613. Soaps. Filed Nov. 29, 1941. Parfums Schiaparelli, Inc., New York. Serial No. 449,062. Published Feb. 3, 1942. Class 4.

Ban Steel Drums and Pails for Potash Soaps, Insecticides, etc.

★ ★ ★

STEEL drums, barrels and pails are banned for the packaging and shipment of soft soaps, liquid soaps, other soap products, insecticides, disinfectants, and other sanitary products by a War Production Board "L" order reported issued May 4. Drums and pails, new or used in soap, disinfectant and insecticide manufacturers' hands will be permitted to be used up and will not be frozen. Returnable drums, shipped on memorandum charge where title remains with the manufacturer, may continue to be re-used until worn out. Lithographed pails already manufactured and awaiting shipment by pail manufacturers to soap and sanitary chemical manufacturers will be permitted to be shipped. But no further purchases of any new or used steel pails or drums of any kind may be made for the packaging of soaps, insecticides, disinfectants, and other sanitary products. The W.P.B. suggests the substitute use of wood kits, pails and tight barrels.

Correct Trade Mark Errors

In the March issue of *Soap & Sanitary Chemicals*, the trade mark "Marblite" was incorrectly listed as having been filed by C. S. Welch Co., New York, and the trade mark "Spring Morning" as having been filed by Charles Ederer, New York. Actually "Marblite" was filed by Ralph Barker Lester, Barker Chemical Co., New York, and "Spring Morning" was filed by The C. S. Welch Co.

This Is NO TIME To Be a Squirrel!

Squirrels, you know, are always hiding away more food in the ground than they can possibly use. . . . But for some reason, there always seems to be enough food around to save them the trouble of digging most of it up.

Probably some companies, unintentionally of course, are playing "squirrel" . . . by tucking away supplies of alkalies "just in case something happens. . . ."

This is an excellent way to help make that "something" happen *right here at home!* If you build up alkali inventories beyond normal requirements, you are taxing production facilities, and preventing delivery of vitally important basic war materials that are urgently needed *now* for the production of ammunition, guns, airplanes, clothing and hundreds of other war necessities.

There is actually no necessity for "stocking up" on alkalies. The raw materials for making alkalies are abundant in America. There are many giant plants now manufacturing tremendous quantities of the finished product. Obviously, war needs come first, which may necessitate sacrifices on the part of companies not producing war materials. In general, however, there are enough alkalies to go around *if none of us plays squirrel.*

FOR VICTORY
BUY WAR SAVINGS BONDS AND STAMPS

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET NEW YORK, N. Y.

BRANCH SALES OFFICES:

Boston · Charlotte · Chicago · Cincinnati · Cleveland · Detroit
New Orleans · New York · Philadelphia · Pittsburgh · St. Louis · Syracuse

Soda Ash · Caustic Soda · Caustic Potash · Modified Sodas · Para-dichlorobenzene · Potassium Carbonate · Chlorine
Ammonium Bicarbonate · Ammonium Chloride · Calcium Chloride · Causticized Ash · Salt · Sodium Nitrite

RAW MATERIAL MARKETS

As of April 29, 1942

NEW YORK—Rumors that ceiling prices on fats and oils would be increased by a government order were squelched on April 22 in an announcement by Leon Henderson, OPA. The ceilings covering 125 fats and oils, including those used in soap manufacture, the price administrator stated, which will be issued shortly by the OPA in amendment No. 3 to revised price schedule No. 53, will impose specifically the same prevailing ceilings under which the industry is now operating. The new price basis will be a uniform one for the entire industry, with differentials for various basing points. Issuance of the new amendment should end the movement withholding substantial supplies of oils and fats from the market. Mr. Henderson urged crushers to move their stocks at present prices before more plants are forced to shut down because of inadequate supplies while actual stocks of these fats and oils lie unused in the nation's storage tanks.

During the month of April, business in the fats and oils used in the manufacture of soaps and sanitary products remained quiet with offerings very light or entirely lacking. Quotations on most items remained unchanged at ceiling levels. The essential oils continued in strong demand during the month, those items now higher than a month ago being oil of bay, bois de rose, oil juniper tar, oil of cassia, oil of citronella, oil of clove, eucalyptus oil, oil of geranium, lemongrass oil, oil of nutmeg, oil of patchouli, oil of peppermint, pineneedle oil, oil of rosemary, oil of sandalwood, and oil of vetiver. Readjustments of prices in line with the general maximum price regulation issued April 28, by the OPA, are now being planned by dealers, it is reported.

The general maximum price regulation imposes ceilings on sales of commodities, except for the few that are exempted, equal to the highest level charged by sellers during the month of March. This rule will be effective on May 11 for manufacturers and wholesalers, while retailers are bound to the provisions of the regulation beginning May 18. Linseed oil is exempted from the terms of the maximum price order.

Animal Fats

Prices of animal fats remained at ceiling prices throughout the month with offerings of tallow reported light. Where tallow supplies were withheld from the market "while sellers awaited developments in the matter of price ceilings being revised," offerings should become more plentiful now that rumors of increases in fats and oils ceilings have been dispelled. Mr. Henderson, in a public announcement, said that any price revisions to be made in the new amendment to revised price schedule No. 53 will be minor, and will take the form largely of adjustments of spreads and other minor inequalities now in the schedule. He also stated that revisions in some cases would be downward as well as upward.

Vegetable Oils

No change took place in the vegetable oils picture during the month, with offerings of domestic oils continuing light and offerings of imported materials continuing lacking. Soybean oil production during the first quarter of 1942 was the largest ever recorded, the bureau of the census reported during the month. Production of soybean oil amounted to 188,805,000 pounds during the first 1942 quarter, or 25 per cent greater than the 151,601,000 pounds produced during the first quarter of 1941, and 7 per cent greater than during the quarter ended Dec. 31, 1941. Stocks of soybean oil at the mills on March 31, 1942, amounted to 29,427,000 pounds, as compared with 30,991,000 pounds on the same date the previous year. Production of linseed oil during the first quarter of 1942 was also the largest ever recorded by the bureau of the census, amounting to 258,720,000 pounds as compared with 196,255,000 pounds of linseed oil produced during the first quarter of 1941. Stocks of linseed oil at the mills on March 31, 1942, totaled 170,880,000 pounds, as compared with 150,434,000 pounds March 31, 1941.

Shellac

Conservation Order M-106, issued April 14 by the War Production Board, froze 50 per cent of all inventories of shellac of 10,000 pounds or more and 50 per cent of all imports, and restricted its use for all nonmilitary or non-essential purposes. Uses of shellac other than the manufacture of recordings (which was cut to 30 per cent of 1941 production) are restricted to 75 per cent of the corresponding period of 1941 until June 30, and 35 per cent by quarters thereafter. This ruling affects use of shellac in the manufacture of floor waxes and floor finishes. Reason for the action is that India is practically the sole source of shellac used in the United States and supplies are subject to shipping hazards. Persons who had on April 1 possession or control of 5,000 pounds of shellac are required to file a report with the WPB by May 9.

Cowles Offers New Cleaner

Cowles Detergent Co., Cleveland, announces "Lixol," a new solvent emulsion-type metal cleaner. This new cleaner is said to be suitable for use on all metals. It can be used alone or diluted with water or kerosene. Descriptive booklets are available upon request.

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We can convert your natural oils and fats to fatty acids and maintain good color standards by our special process of removing glycerine

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RED OIL and STEARIC ACID—Saponified and Distilled
HYDREX — Hydrogenated Fatty Acids
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5636 E. 61st St.
Los Angeles

Cable Address: HARDOIL

RAW MATERIAL PRICES

(As of April 29, 1942)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C.P., drums	lb.	$ .08½	$ .09
Acid, Boric, bbls., 99½%	ton	106.00	128.00
Cresylic, drums	gal.	.81	.86
Low boiling grade	gal.	.81	.86
Muriatic, C. P., carboys	lb.	.08	—
Oxalic, bbls.	lb.	.11¼	.14¼
Adeps Lanae, hydrous, drums	lb.	.32	.34
Anhydrous, drums	lb.	.33	.35
Alcohol, Ethyl, drums	gal.	8.19	8.25½
Complete Denat., SD1, dms., ex.	gal.	.60	.65
Alum. Potash lump, bbls.	lb.	.04½	—
Ammonia Water, 26°, drums	lb.	.02¼	.02½
Ammonium Carbonate, tech., drums	lb.	.08¼	.09¼
Bentonite	ton	25.00	51.00
Bleaching Powder, drums	100 lb.	2.25	3.35
Borax, pd., bbls., bags	ton	50.00	75.00
Carbon Tetrachloride, car lots	gal.	.73	1.17
L. C. L.	gal.	.80	1.27
Caustic, see Soda Caustic, Potash Caustic			
China Clay, filler	ton	7.60	16.00
Cresol, U.S.P., drums	lb.	.11	.11¾
Creosote Oil	gal.	.141	.15½
Feldspar, works	ton	30.00	35.00
Formaldehyde, bbls.	lb.	.05¾	.07¼
Fullers Earth	ton	8.50	15.00
Glycerine, C.P., drums	lb.	.18¼	.19¼
Dynamite, drums	lb.	.18¼	.18¾
Saponification, drums	lb.	.12¾	.14¾
Soap lye, drums	lb.	.11½	—
Hexalin, drums	lb.	.23	—
Lime, live, bbls.	ton	6.25	13.00
Mercury Bichloride, drums	lb.	2.24	2.39
Naphthalene, ref. flakes, bbls.	lb.	.08	—
Nitrobenzene (Mirbane) drums	lb.	.08	.09
Orthodichlorbenzene	lb.	.07½	.08½
Paradichlorbenzene, drums	lb.	.11	.15
Petrolatum, bbls. (as to color)	lb.	.03½	.08
Phenol (Carbolic Acid) drums	lb.	.12½	.14¼
Pine Oils, drums	gal.	.74	1.10
Potash, Caustic, solid	lb.	.06¼	.06¾
Flake, 88-92%	lb.	.07	.07¼
Liquid, 45% basis	lb.	.02⅞	.03¼
Potassium Carbonate, solid	lb.	.06½	.06¾
Liquid	lb.	.03	.03⅛
Pumice Stone, coarse	lb.	.03½	.04¾
Rosins (net wt., ex dock, New York)—			
Grade D to H	100 lb.	3.17	3.44
Grade I to N	100 lb.	3.45	3.70
Grade WG to X	100 lb.	3.85	3.90
Wood, ex. dock	100 lb.	3.12	4.03
Rotten Stone, dom., bags	lb.	.02½	.04
Silica	ton	20.00	27.00
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.05	1.45
Car lots, in bulk	100 lb.	.90	.95
Soda Caustic, cont., wks., solid	100 lb.	2.30	—
Flake	100 lb.	2.70	2.95
Liquid, tanks, 47-49%	100 lb.	1.92½	1.95
Soda Sal., bbls.	100 lb.	1.10	1.30
Sodium Chloride (Salt)	ton	14.20	18.00
Sodium Fluoride, bbls.	lb.	.08	.09¼
Sodium Hydrosulfite, bbls.	lb.	.17	.18
Sodium Metasilicate, anhyd.	100 lb.	4.00	5.30
Granulated	100 lb.	2.50	3.55
Sodium Pyrophosphate	100 lb.	5.25	6.80
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.40	1.80
Tar Acid Oils, 15-25%	gal.	.27½	.33½
Triethanolamine	lb.	.18	.20
Trisodium Phosphate, bags, bbls.	100 lb.	2.70	4.30
Zinc Oxide, lead free	lb.	.07¼	.07¾

Oils — Fats — Greases

Babassu, tanks, futures	lb.	.11½	Nom.
Castor, No. 1, bbls.	lb.	.14	.14½
No. 3, bbls.	lb.	.13¾	.14¼
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	—	—
Tanks, Pacific Coast, futures	lb.	—	—
Copra, bulk, coast	lb.	—	—
Corn, tanks, West	lb.	.12¾	—
Cottonseed, crude, tanks, mill	lb.	.12⅝	—
PSY, futures	lb.	.14	—
Fatty Acids—			
Corn Oil, tanks, Chicago	lb.	.14	.14½
Coconut Oil, tanks, Twitchell, Chi.	lb.	.17	.17½
Cotton Oil, tanks, Chicago	lb.	.13	.13½
Settled soap stock, Chicago	lb.	.03⅞	.04
Boiled soap stock, 65%, Chi.	lb.	.04⅞	.05
Foots, 50%, Chicago	lb.	.03¾	.04
Castor Oil, split, tanks, N. Y.	lb.	.20¼	—
Linseed Oil, split, tanks, N. Y.	lb.	.18¾	—
Distilled	lb.	.20½	—
Myristic acid, distilled, tanks, N. Y.	lb.	.18½	—
Palm Oil, white, tanks, N. Y.	lb.	.12½	—
Single distilled	lb.	.11¼	—
Soybean Oil, split, tanks, N. Y.	lb.	.17¼	—
Distilled	lb.	.19	—
Red Oil, bbls., dist. or sapon.	lb.	.1330	.1430
Tanks	lb.	.1245	—
Stearic Acid, saponif.			
Double pressed	lb.	.1580	.1680
Triple pressed	lb.	.1855	.1985
Greases, choice white, tanks	lb.	.0971¼	—
Yellow	lb.	.0929⅝	—
Lard, city, tubs	lb.	.12½	—
Linseed, raw, bbl.	lb.	.1410	.1490
Tanks, raw	lb.	.1320	.1340
Olive, denatured, bbls., N. Y.	gal.	4.40	4.50
Foots, bbls., N. Y.	lb.	.19½	.20
Palm, Sumatra, cif. New York, Tanks	lb.	—	—
African, tanks, ex. ship	lb.	.08¼	—
Palm, kernel, f.o.b. San F.	lb.	—	—
Peanut, crude, tanks, mill	lb.	.13	—
Soya Bean, domestic, tanks, crude	lb.	.12¼	—
Stearin, oleo, bbls.	lb.	.1054	—
Tallow, special, f.o.b. N. Y.	lb.	.0957⅜	—
City, ex. loose, f.o.b. N. Y.	lb.	.0971¼	—
Teaseed Oil, crude	lb.	—	—

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Liquid Olive Oil Soap

Liquid Vegetable Oil Soap

40% and 30% (Only)

To replace coconut oil soaps

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Powdered Soap

U. S. P. Castile (Only)

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Plain, Pine, Sassafras

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Soap perfuming has always been a long suit with us. Today with the replacing of Cocoanut Oils with other, more unpleasantly odoriferous ones, perfumes are needed for masking odors of the soap base as well as giving the soap sales appeal through perfuming.

Our Laboratory will show how little it costs to mask the raw material odor and perfume these new type soaps.

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(As of April 29, 1942)

Essential Oils

Almond, Bitter, U.S.P.	lb.	$3.50	$3.75
Bitter, F.F.P.A.	lb.	4.75	5.00
Sweet, cans	lb.	2.65	2.75
Anise, cans, U.S.P.	lb.	4.00	4.25
Bay, 55-66% phenols, cans	lb.	1.85	2.45
Bergamot, coppers	lb.	32.00	Nom.
Artificial	lb.	2.75	9.25
Birch Tar, rect., cans	lb.	—	—
Crude, cans	lb.	—	—
Bois de Rose, Brazilian	lb.	5.75	6.00
Cayenne	lb.	—	—
Cade (juniper tar), drums	lb.	1.50	Nom.
Cajeput, tech, drums	lb.	2.50	2.60
Calamus, cans	lb.	—	—
Camphor, Sassy, drums	lb.	—	—
White, drums	lb.	—	—
Cananga, native, cans	lb.	18.00	19.00
Rectified, cans	lb.	19.00	20.00
Caraway Seed	lb.	15.00	Nom.
Cassia, Redistilled, U.S.P.	lb.	14.00	Nom.
Cedar Leaf, cans	lb.	1.10	1.65
Cedar Wood, light, drums	lb.	.95	1.00
Citronella, Java, drums	lb.	2.75	3.00
Citronella, Ceylon, drums	lb.	2.00	2.25
Clove, U.S.P., cans	lb.	1.85	2.10
Eucalyptus, Austl., U.S.P., cans	lb.	.98	1.03
Fennel, sweet, cans	lb.	3.25	3.50
Geranium, African, cans	lb.	30.00	Nom.
Bourbon, cans	lb.	30.00	Nom.
Turkish (Palmarosa)	lb.	5.25	5.50
Hemlock, cans	lb.	1.20	1.25
Lavender, 30-32% ester, cans	lb.	—	—
Spike, Spanish, cans	lb.	4.25	4.35
Lemon, Ital., U.S.P.	lb.	5.50	Nom.
Cal.	lb.	3.25	—
Lemongrass, native, cans	lb.	4.40	4.50
Linaloe, Mex., cases	lb.	3.50	3.75
Nutmeg, U.S.P., cans	lb.	5.25	5.50
Orange, Sweet, W. Ind., cans	lb.	6.00	6.25
Italian cop	lb.	8.00	Nom.
Distilled	lb.	1.70	—
California, expressed	lb.	3.25	—
Origanum, cans, tech	lb.	2.85	2.90
Patchouli	lb.	9.25	9.50
Pennyroyal, dom.	lb.	—	—
Imported	lb.	2.75	3.00
Peppermint, nat., cans	lb.	5.50	5.75
Redis., U.S.P., cans	lb.	6.00	6.25
Petitgrain, S. A., cans	lb.	1.85	1.90
Pine Needle, Siberian	lb.	3.00	3.25
Rosemary, Spanish, cans	lb.	3.15	3.20
drums	lb.	3.00	3.10
Sandalwood, dom., dist., U.S.P.	lb.	6.90	7.00
Sassafras, U.S.P.	lb.	1.75	1.80
Artificial, drums	lb.	—	—
Spearmint, U.S.P.	lb.	3.10	3.25
Thyme, red, N. F.	lb.	2.10	2.25
White, N. F.	lb.	2.50	2.75
Vetiver, Java	lb.	52.00	Nom.
Ylang Ylang, Bourbon	lb.	—	—

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.55	$1.60
Amyl Cinnamic Aldehyde	lb.	—	—
Anethol	lb.	2.25	2.40
Benzaldehyde, tech.	lb.	.45	.55
N. F. VI	lb.	.85	.95
Benzyl, Acetate	lb.	.59	Nom.
Alcohol	lb.	.63	.75
Citral	lb.	5.50	7.00
Citronellal	lb.	2.75	3.25
Citronellol	lb.	7.00	7.25
Citronellyl Acetate	lb.	—	—
Coumarin	lb.	2.75	3.25
Diphenyl oxide	lb.	.43	.50
Eucalyptol, U.S.P.	lb.	2.00	2.50
Eugenol, U.S.P.	lb.	2.75	2.80
Geraniol, Soap	lb.	1.10	1.50
Other grades	lb.	1.50	3.50
Geranyl Acetate	lb.	—	—
Heliotropin	lb.	5.25	Nom.
Hydroxycitronellal	lb.	10.25	10.50
Indol, C. P.	lb.	28.00	30.00
Ionone	lb.	2.75	3.95
Isoborneol	lb.	.81	.90
Iso-bornyl acetate	lb.	.80	.95
Iso-Eugenol	lb.	—	—
Linolool	lb.	6.75	7.00
Linalyl Acetate	lb.	5.50	7.25
Menthol, natural	lb.	14.00	14.25
Synthetic, U.S.P.	lb.	—	—
Methyl Acetophenone	lb.	—	—
Anthranilate	lb.	2.20	2.35
Paracresol	lb.	—	—
Salicylate, U.S.P.	lb.	.35	.40
Musk Ambrette	lb.	4.00	4.45
Ketone	lb.	4.15	4.60
Xylol	lb.	1.40	1.80
Phenylacetaldehyde	lb.	5.00	6.00
Phenylacetic Acid	lb.	1.85	1.90
Phenylethyl Alcohol	lb.	2.10	2.50
Rhodinol	lb.	—	—
Safrol	lb.	2.25	2.45
Terpineol, C.P., drs.	lb.	.40	—
Cans	lb.	.43	—
Terpinyl Acetate, 25 lb. cans	lb.	.87	—
Thymol, U.S.P.	lb.	3.00	Nom.
Vanillin, U.S.P.	lb.	2.35	2.75
Yara Yara	lb.	1.80	1.85

Insecticide Materials

Insect Powder, bbls.	lb.	.29	.30
Pyrethrum Extract			
5 to 1	gal.	1.45	1.50
20 to 1	gal.	5.75	5.85
30 to 1	gal.	8.75	8.95
Derris, powder—4%	lb.	.32	—
Derris, powder—5%	lb.	.35	—
Cube, powder—4%	lb.	.32	—
Cube, powder—5%	lb.	.35	—
Squill, red, dried	lb.	.85	1.00

Waxes

Bees, white	lb.	.61	—
African, bgs.	lb.	.49	—
Refined, yel.	lb.	.59	.60
Candelilla, bgs.	lb.	.38	—
Carnauba, No. 1, yellow	lb.	.87	.88
No. 2, N. C.	lb.	.82	.83
No. 3, Chalky	lb.	.75	.76
Ceresin, yellow	lb.	.13½	.18
Montan Wax, bags	lb.	.45	.46
Paraffin, ref. 125-130	lb.	.0520	.0560

CHECK

These OILS, FATS & WAXES being treated with . . .

NUCHAR ACTIVE CARBON

- Beeswax
- Cocoa Butter
- Grease
- Lard
- Oil
  - Castor
  - Cocoanut, Crude
  - Cocoanut, Refined
  - Corn
  - Cottonseed
  - Fish
  - Linseed
  - Olive
  - Palm
  - Palm Kernel
- Oil *(cont.)*
  - Peanut
  - Rapeseed
  - Sesame
  - Soya Bean
  - Sunflower
  - Teaseed
- Tallow
  - Edible
  - Inedible
- Waxes
  - Beeswax
  - Candelilla
  - Carnauba
  - Ozokerite
  - Paraffin

Considerable care should be given to the selection of the proper active carbon for each Oil, Fat or Wax to be purified. Frequently the application of active carbon has been discarded because sufficient study was not given to the selection of the proper quality. Although some special high-priced active carbon may be essential to certain applications, yet this same active carbon may be no better pound for pound than a less expensive active carbon for certain other applications.

If you want to improve your methods of purification, why not discuss your problems with us? Our technical staff will determine the proper grade of NUCHAR Active Carbon you should use to get maximum purification at a minimum operating cost.

NUCHAR

INDUSTRIAL CHEMICAL SALES

DIVISION WEST VIRGINIA PULP & PAPER COMPANY

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Notes on Wash Room Practice

THE system of circulating soap in commercial laundries has made a place for itself by development of proper design for such equipment. To get the best results, two tanks must be available so that one can be filled while the other is in use.

The soap solution chosen for use cannot be of too high a concentration or it will congeal in the lines unless kept moving all the time. The tank should be big enough so that an entire barrel of soap can be emptied into it at one time without making too high a concentration. Even with a relatively low concentration, some settling in the lines will occur. It is probably better to have the pump arranged to provide constantly moving circulation. In such a system, attention should be paid to the screens over the outlet from tank to pump to keep out solid particles. Frequent inspection is necessary. All lines should be drained and washed once a week in a busy washroom.

Some washmen prefer the use of dry soap plus builder, weighing the material in advance and arranging a row of small containers on a shelf near the machine. The first container is for the first bath, the second for the second and so on. Amounts used should be just as accurately controlled as in any of the systems where solutions are prepared in advance.

Built soap solution can be prepared and drawn on over a period of time, and should not deteriorate seriously. For example, a heavy load of white work was observed when run through a big metal washer with soap solution made up with builder a week previously, but re-stirred before being drawn off. Brightness and the clean-smelling qualities of the finished load were almost perfect. David I. Day. *Am. Perfumer & Essential Oil Review*, March, pp. 42-7 (1942).

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Bleach Shortage in the Washroom

Shortage of bleach poses a particular problem for the laundryman who must exercise precise control in his washroom and maintain most efficient washing procedures to give a clean wash with minimum of bleach. The pH in every suds should be maintained at 11.4-11.8, which will remove colloidal soil more effectively than a lower pH. The temperature throughout should be maintained at 160-165° F., a region for which this pH is safe and efficient.

A well buffered alkali is required. When a high pH is obtained with the use of caustic soda, the initial pH exceeds the safe operating point, while after a 5-minute suds the pH has fallen to a point where little soil is removed. A well buffered alkali contains sufficient reserve alkali to hold up the pH during the entire suds operation. If insufficient reserve alkali is present, the suds will drop and dirt will be thrown out of suspension. From 500 to 750 parts per million of alkali in terms of Na_2O, titrated to a phenolphthalein end point, should be present in the suds two minutes after the supplies have been added. The methyl orange alkalinity is inactive and should be kept to a minimum.

High water levels and high suds are best, as shown by scientific tests of soil removal and whiteness retention. Enough supplies should be added to bring the suds level to the door line or the center of the machine. Add more if necessary to keep the suds from falling. Use the suds level for a guage of the amount of soap and alkali required.

Examine the suds water as it comes from the dump valve, in a clear glass tumbler or clean milk bottle. When the visible dirt is gone, the detergents have done their job.

The softest possible water should be used, by addition of a small amount of sodium metaphosphate or similar compound to the suds, made from previously softened water. Suds operations should be kept short, 5 to 7

minutes according to the type of machine. Longer periods may permit redeposition of soil. Use plenty of hot, high-level rinses.

Bleach should be used at pH 11.4-11.8 and 165° F. One quart of 1 per cent bleach per 100 pounds of material is recommended during a suds operation after removal of all heavy loose soil. With good working conditions it will be found that no bleach is required on hotel, hospital and lightly soiled linen-supply goods. John W. Chamberlain. *The Laundryman* 8, No. 3, 7-9, 24 (1942).

Cleaning Cotton Raincoats

Raincoats of cotton or union cannot be cleaned adequately by dry cleaning; they should be brushed subsequently with a soap-sulfonated fatty acid mixture or a spirit soap. Washing in a rotary machine is not advised because of the dangers of uneven penetration and of the shrinkage of wool linings. The washed coats should be retinted by immersion in a dye bath for just sufficient time to even up the color. Finally the coats should be re-proofed by treatment with aluminum acetate or a paraffin wax emulsion.

Aluminum acetate can be prepared by mixing a solution of sugar of lead with a solution of alum and allowing several hours for the sediment formed to settle. The clear liquid is used to impregnate the material in reproofing. W. Brown. *Power Laundry* 1941, 503, 555.

Stain Removal

Grass stains may be removed from textiles with hot alcohol, or hot glycerine followed by hot-alcohol treatment. Coffee, chocolate and cocoa stains are treated with potassium permanganate, followed by a slightly acid solution of hydrogen peroxide; they may also be soaked in hot glycerine followed by washing. Perspiration marks are best removed with warm water and ammonia when the fabric is wool or silk. For cotton or rayon, one part of sodium hypochlorite to four parts of warm water is better. This must be followed by thorough rinsing, last with acidulated water. Scorch marks may be treated with hydrogen peroxide containing a little sulfuric acid. Rust stains and stains from ink containing iron are removed by soaking in warm oxalic acid solution followed by thorough rinsing. *Textile J. of Australia;* through *Textile Colorist*, 64, 151-2 (1942).

Dry Cleaning Detergents

Synthetic detergents are rapidly replacing the older type of superfatted soaps, or rather partly neutralized fatty acids, for addition to dry-cleaning fluids. The former may be any of a number of sulfated fatty alcohols, esters, etc. These provide excellent possibilities for incorporating desirable percentages of water in a finely emulsified form. Distillation and filtration are the means of clarifying the fluid. The new detergents avoid rancidity development which sometimes occurs with the fatty acid soaps, the latter forming peroxides, then malodorous aldehydes.

The synthetic detergents are able to carry higher percentages of water, desirable for maximum detergency. This increased water content raises the conductivity of the solvent, so that static electricity does not form and the soil can be more readily removed and maintained in suspension.

A level of cleaning fluid of one-third the diameter of the wheel is recommended for wools, and one-quarter the diameter of the wheel for silks. Temperature is important, since the dissolving power and carrying power of the solvent for soil is almost doubled at 80° F. over what it is at 60 F°. As soon as the washer is started, detergent is added without the break, and the load run for 20-30 minutes. Filter powder is then added and the solvent passed through the filter for 15 minutes or until clear. A. W. Miller. *Laundry & Dry Cleaning J. of Canada* 22, 12-13, 18 (1942).

Natural Antioxidants

Vegetable oils contain antioxidants which are progressively removed in purifying the oils. Even the most highly refined vegetable oils still contain substances having demonstrable antioxygenic activity. Substances which appear to be effective antioxidants under one set of conditions prove inactive in a different environment. *Beta-* and *gamma*-tocopherols are more effective stabilizers for animal fats than when added to the vegetable fats from which they are obtained. Phosphoric acid aids in stabilizing vegetable fats which contain tocopherol or similar phenolic inhibitors. Cephalin, a phospholipid, is more effective in vegetable oils than in animal fats. Multiple phenolic groups account for the marked antioxidant activity of gossypol. Sesamol, present in sesame oil, has antioxidant properties. Chlorophyll and carotenoids are pro-oxidants. H. S. Olcott. *Chem. Reviews* 29, 257-68 (1941).

Fractionation of Fatty Acids

A stock containing mixed fatty acids and a neutral oil is passed into a fractionating zone at a reduced pressure. The fatty-acid vapors pass upward through the zone against a countercurrent of reflux liquid. Steam also passes upward. A vaporous fraction is withdrawn from the upper parts of the zone and a portion is returned as reflux liquid. Neutral oil withdrawn from the fractionating zone is heated and then returned to supply heat to the vaporizing reflux liquid. Armour & Co. British Patent No. 533,847.

Silicosis from Soap Powder

Abrasive soap powders involved in fatal cases of silicosis consisted chiefly of a mixture of caustic soda and finely ground sand, in one case, and in the other 60 per cent of free silica, 30 of Italian pumice, and 10 per cent of kettle soap. R. J. Ritterhoff. *Am. Rev. Tuberc.* 43, 117-31.

Molecular Distillation

Molecular distillation of vegetable oils will remove the free fatty acids and the unsaponifiable constituents of the oil with considerable efficiency. This method of concentration is of especial value when the substances studied may be altered by saponification. The present types of molecular stills are of little value in separating the triglycerides of vegetable oils. Norris D. Embree. *Chem. Reviews* 29, 317-32 (1941).

Cutaneous Detergents

AN exhaustive study on the subject of "Cutaneous Detergents" has been made by Drs. C. G. Lane and Irvin H. Blank, the results being published in the *Journal of the American Medical Association* for March 7, 1942. Soap, say the authors, cleans by emulsification rather than saponification of the oily soil. The newer non-soap detergents, it is believed, also clean in the same way. This method of cleansing is important, say the authors, in relation to its effect upon the skin. Water undoubtedly hydrates to some extent the cells of the stratum corneum with which it comes into contact.

Soaps are often accused of being drying in their effect, and superfatting was intended in part to overcome this. However, say the authors, rinsing sufficient to remove all of the soap from the skin will undoubtedly leave behind very little of the emollient agent. The additional observation is made that superfatting to reduce free alkalinity is illusory, since reaction does not take place between the neutral superfatting agent and the alkali, either free or formed on hydrolysis.

Many writers, it is pointed out, believe that the alkalinity of soap is primarily responsible for its irritating action. Triethanolamine soaps have been recommended because of their lower alkalinity but are apparently no less irritating. Others believe that the fatty acids themselves are the primary cause of irritation, aggravated by small amounts of alkali. It has been shown that the sodium soap of lauric acid is far more irritating than the sodium soaps of any other saturated fatty acids. Unsaturated fatty acids produce more irritating soaps.

The newer detergents are satisfactory skin cleaners, say Drs. Lane and Blank, but they have been in use for so short a time that a mass of data concerning their action on the skin has not yet been accumulated. Some that were formerly considered cutaneous irritants have now been shown to be non-irritating when properly made and have been satisfactorily substituted for soap where soap is irritating.

◆

High Temperature Saponification

The saponification of fats at high temperature as disclosed by Kokatnur (U. S. Pat. 1,813,454) was investigated in the laboratory by Joseph J. Jacobs and findings described in *Industrial & Engineering Chemistry* 34, 322-6 (1942). The fat was dissolved in kerosene and heated with agitation to 180 degrees. Powdered anhydrous NaOH was then added and the temperature brought to 220 degrees. The liquid was then sprayed through a glass nozzle into a vacuum flask, the kerosene and glycerol flashing off and leaving a powdered soap. The highest glycerol recovery was 86 per cent. The minimum residual kerosene in the soap was less than 0.4 per cent. A small pilot plant has been built and the process can be operated continuously.

◆

Rotproofing of Textiles

Textiles are protected against rot by impregnation with a solution of a complex salt of copper which is stable in alkaline solution. The copper salt is then converted to a water-insoluble copper salt within the material by drying with the aid of heat. The copper salt may conveniently be a sulfate, chloride or nitrate dissolved in an aqueous solution of ammonia or alkali metal hydroxide. Ernst Fried. British Patent No. 538,129.

◆

Barium Sulfate in Soap

French patent 851,812 issued to Georges Croulard describes the incorporation of barium sulfate into soap in proportions ranging from 1 to 90 per cent.

◆

Determination of Moisture

A method for the determination of moisture in soft soap is described in *Chemist Analyst* 30, 79-80 (1941). In making the determination a 100 x 15 mm. Pyrex glass Petri dish, with a cover and a small piece of No. 20 B. & S. gage copper wire bent in the shape of a letter S are employed. After weighing dish, cover and wire, the cover is removed and about 2 g. of soap spread over the bottom of the dish with a small spatula. The apparatus is then reassembled and again weighed. Placed in a vacuum, with the wire slightly raising the cover, the dish is heated 30 minutes at 100 degrees under 15-20 in. vacuum. The loss in weight is water.

◆

Oil Chemists Meet at Houston

The 33rd annual meeting of the American Oil Chemists' Society was held at the Rice Hotel, Houston, Texas, April 30 and May 1. The talks given at the two-day meeting were: report of color committee by H. P. Trevithick, New York; report of soap analysis committee by M. L. Sheely, Chicago; report of soap in refined oil committee by G. A. Crapple, Chicago; report of sulphonated oil committee by Ralph Hart, New York, and the report of the soya bean committee by T. H. Hopper, Urbana, Ill.

◆

Sulfated Alcohols

Hydrocarbons of high molecular weight are oxidized and the non-alcoholic compounds converted into alcohols by reduction at 270° C. at 200 atmospheres' pressure in the presence of a magnesium-zinc catalyst. Constituents which contain less than 11 carbon atoms in the molecule are removed and the mixture of alcohols sulfonated. Hans Beller and John J. Owen, to I. G. Farbenind. A.-T. and Standard Oil Development Co. British Patent No. 532,700.

◆

Carnauba and Licuri Waxes

Aside from their appearance under the microscope, carnauba and licuri waxes can be distinguished by the following simple test: Pulverize five grams of wax and shake with 10 cc. of 10-20 per cent caustic soda solution. Licuri wax produces a yellow orange color. With carnauba wax the solution remains colorless. Walter Motta. *Rev. quin. ind.* (Rio de Janeiro) **10**, No. 115, 16-17, 380-1.

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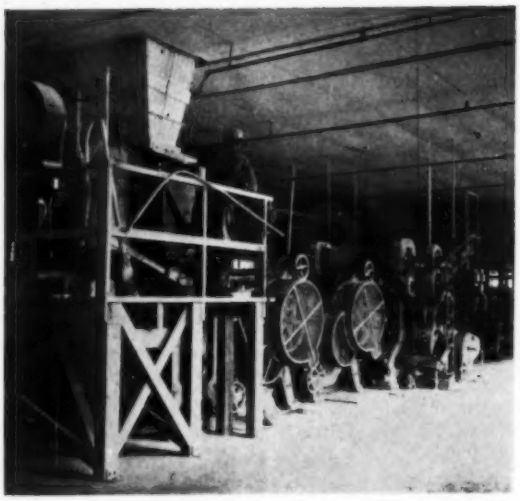

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Iron Removal from Caustic

Much of the iron impurity in commercial caustic soda solutions produced by electrochemical means occurs in the form of a ferrate, FeO_4- ion, with possibly some FeO_3- and Fe_2O_4-ions. The removal of this impurity by finely ground strontium ores is due to the adsorption of the ferrate, perferrite, or ferrite ions upon the ore particles. These in turn settle from the solution.

At 30° C. strontium sulfate is a better adsorbent than strontium carbonate. Increase in temperature increases the amount of iron impurity removed from the solution by a given amount of strontium mineral. At higher temperatures strontium carbonate approaches strontium sulfate in its ability to remove iron impurities.

Calcium and barium sulfates and carbonates do not exhibit as good adsorptive properties as those of strontium for higher-valence iron ions from caustic solution. William E. Caldwell and Charles A. Boyd. *Ind. Eng. Chem.* **34,** 230-3 (1942).

Oil Clarification

Oily materials such as Congo palm oil containing albuminous coloring matter are cleaned up by drying the material and adding 0.1-0.5 per cent of finely divided nickel, cobalt, zinc, manganese or copper, or an oxide, dioxide, manganate, permanganate, dichromate and chlorate of copper, cobalt, manganese or nickel. The added material is mixed in until a true suspension is obtained. The quantity of reagent is so small that substantially no increase of fatty acid or oxyacid occurs. The temperature is maintained at about the melting point of the material. Mixing is continued until the reagent forms a colloidal complex with the mucins, albuminoids and coloring matter present, during which time a change of color occurs. When the change of color has ceased, a small quantity of mineral acid is added and stirred in. The mixture is then heated to about 90° C. and a powdered adsorbent material added with mixing. The mixture is filtered to remove the adsorbent and the substances which it has collected. The whole process takes place under vacuum. Eugene Kellens. U. S. Patent No. 2,260,910.

Mothproof Testing

To test the efficacy of mothproofing agents, sample fabrics, one treated with the mothproofing agent under consideration, and a blank with no agent, are allowed to age for 24 hours at 80° F. and a relative humidity of 80 per cent. The materials are then inoculated with hungry larvae and the infested fabrics confined in petri dishes or some type of porous receptacle which would not allow the worms to escape. The samples are then placed in an incubator at 80° F. and 80 per cent relative humidity. The relative humidity can be controlled by the use of certain saturated salt solutions in open pans in the incubator.

After ageing for five days, the test materials are removed from the incubator and the uric acid content on the cloth and in the excrement determined colorimetrically with Folin's arseno-phosphotungstic acid reagent. The greater the amount of uric acid, the greater has been the attack on the cloth by the larvae.

If the amount of damage is less than 20 per cent of that on the blank, for practical purposes, the fabric may be termed mothproofed. Hugh H. Mosher. *Am. Dyestuff Reporter* **30,** P320-6, P336 (1941).

Sodium Petroselinate

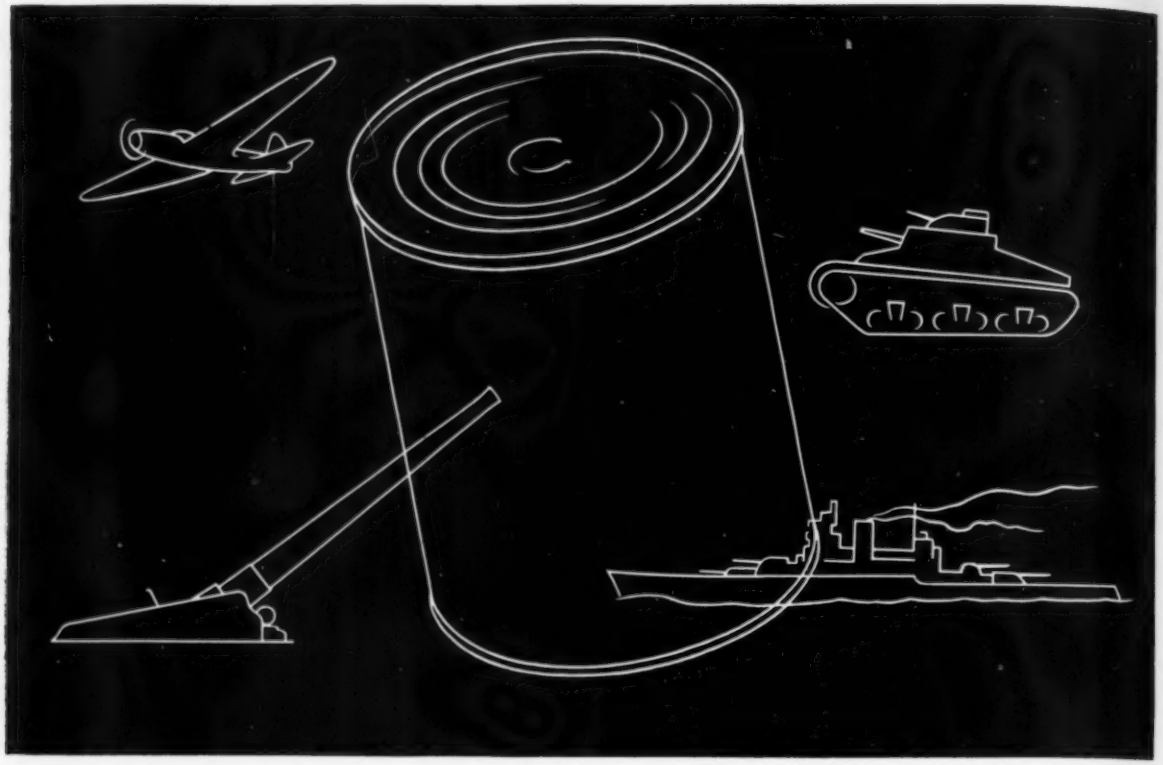
Soaps of some of the lesser known isomers of standard fatty acids have been found to possess very good detergent properties. An example is the soap, sodium petroselinate which is readily soluble in water at room temperature. The viscosity of a fresh aqueous solution is practically identical with that of sodium oleate at 20° C. in concentrations of 0.1-1 per cent. The surface tension is less than that of sodium oleate, and greater than that of sodium elaidate above 45° C. Petroselinic acid, an isomer of oleic acid, melts at 34° C. It is changed by a trace of nitrous acid to its trans isomer, which melts at 54° C.; oxidation produces lauric and adipic acids. Petroselinic acid will yield a soap as good as, or better than sodium oleate in detergent action, as measured by its suspending power of titanium oxide. *Am. Perfumer & Essen. Oil Review* **44,** 47 (1942).

New Chemical Dictionary

The third edition of the *Condensed Chemical Dictionary*, completely revised, expanded and brought up to date, has just been issued by Reinhold Publishing Co., New York. Over 6,000 new items, consisting of new chemicals, raw materials, brand name products, and definitions, have been added to the volume, making it even more useful to buyers of chemicals and other raw materials, plant superintendents, and manufacturers. The listing of chemical specialties sold under trade names has been greatly expanded. Shipping regulations, data on chemical and physical properties of chemicals, and data on the effects of wartime on chemical prices are included. Containing 756 pages, the new *Condensed Chemical Dictionary* is priced at $12.00 a copy.

Wetting Agent Assay

The amount of active ingredient in commercial wetting agents may be determined rapidly by a conductometric method. It is not necessary for the chemical nature of the material to be known so long as a small amount of material free of inorganic salt can be isolated for the calibration curve. The method may be applied wherever the components of a mixture have materially different specific conductivities in solution. The maximum error is probably less than 2 per cent salt content. Calibration curves are given for three typical materials: sodium sulfate plus the sodium salt of each of the following: sulfated coconut-oil monoglyceride, commercial sodium lauryl sulfate, and mixed alkyl aromatic sulfonic acids. J. H. Percy and C. J. Arrowsmith. *Ind. Eng. Chem., Anal. Ed.* **14,** 151-3 (1942).



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PRODUCTS AND PROCESSES

Mixed Amide Detergent

A natural oil such as coconut oil or castor oil is caused to react with 0.5-1.5 molecular proportions of a monoalkylolamine such as ethanolamine at 200-235° C. until a mixture is formed which is practically free from ester amides. This mixture consists of fatty-acid amides, fatty-acid imides, and mono- and diglycerides of the fatty acids. The mixture is sulfonated. Ernst A. Mauersberger, to Alframine Corp. U. S. Patent No. 2,264,766.

Cleaning Emulsion

An aqueous emulsion contains beeswax, carnauba wax and mastic or other soft resin, produced in the presence of ammonia or an ammonium salt such as the carbonate. Volatile organic solvents are used in the production of the emulsion. The presence of turpentine or alcohol is beneficial. C. Roberson Co., Ltd. and Helmut M. Rubemann. British Patent No. 537,152.

Germicidal Detergents

A germicidal detergent contains a buffer salt with a chlorine-containing disinfecting compound such as azochloramide, and a wetting agent, all water-soluble. A solution is made to contain 0.5-3 per cent of the composition, and is an active germicide as well as a detergent. Halvor O. Halvorson, Erling J. Ordal and John L. Wilson, to Economics Lab. Inc. U. S. Patent No. 2,263,948.

Brushless Shaving Aid

A brushless shaving aid in stick form is composed of a fatty or waxy material to which a suitable hydrophilic emulsifier has been added to impart ready wettability. The material must be of such consistency that it can be molded into a self-sustaining stick which, gently rubbed on the wet skin, readily adheres to it, leaving a thin continuous smear providing adequate lubrication throughout the shave. Esters which contain unesterified hydroxy groups such as partial fatty-acid esters of glycerine and polyglycerine, are preferred emulsifiers. Lever Brothers and Unilever, Ltd. and Harry Whitham. British Patent No. 537,407.

Metal Cleaner

A solution for cleaning and sterilizing metals contains 10 parts by weight of sodium hypochlorite containing 10 per cent of available chlorine, 15 parts of sodium hexametaphosphate, 2-4 parts of caustic soda, and 100 parts of water. The amount of alkali is sufficient to stabilize the solution and prevent corrosive action on the metals. Herbert Langwell. British Patent No. 533,265.

Working Off Soap Scrap

Scrap soap, instead of being added to the fat or to the alkali alone, or to the mixture of the bulk quantity of the alkali with the fat, is added to the fat or oil after addition to the latter of a small quantity of soda ash or weak caustic soda solution. Secondary and bulk quantities of caustic are added afterward. Archibald W. Keeble. British Patent No. 534,809.

Disinfectant and Detergent

A dry stable mixture having improved detergent and sterilizing properties consists of a stable calcium hypochlorite containing 50 per cent or more of available chlorine and substantially free of calcium chloride, and sodium ethylene palmitate sulfonate. Varton M. Kalusdian, to Mathieson Alkali Works. Canadian Patent No. 403,649.

Rug Cleaning Solution

Rugs are cleaned by treatment with an aqueous solution formed by dissolving in water a stable calcium hypochlorite, soda ash in excess of that necessary to react with all the calcium present, sodium bicarbonate, and a synthetic organic detergent salt which does not produce an insoluble precipitate in the presence of calcium ions. After treatment, the rug is well rinsed. Varton M. Kalusdian, to Mathieson Alkali Works. Canadian Patent No. 403,650.

Mixed Detergent

A detergent composition contains at least 4 per cent of a water-soluble soap, at least 5 per cent of a phosphorus acid salt, and at least 2 per cent of a detergent salt of an organic acid sulfate. Colgate-Palmolive-Peet Co. British Patent No. 535,809.

Glycerine Removal

In a continuous process, soap is made substantially free from glycerine and water by heating a flowing stream of the soap and glycerine mixture to a temperature in excess of the melting point of the soap when anhydrous. Substantially all air is excluded from the molten mass. The mixture is passed continuously with thorough agitation, preferably under diminished pressure, in intimate countercurrent flow with a moving current of steam. Glycerine is carried from the molten mixture by the steam. Henry W. R. Lorenz. U. S. Patent No. 2,262,950.

Water Softeners

Sulfonic acid salts of oxadiazolones act as water softeners, to re-emulsify lime soaps, and are especially suitable for wool washing. C. Engel and K. Pfaehler, to J. R. Geigy A.-G. U. S. Patent No. 2,264,436.

Silicate Detergent

An alkali-metal silicate is finely pulverized and mixed with a finely divided, compatible, quickly soluble alkaline detergent which is more readily soluble than the silicate. The mixture is agitated in the presence of sufficient water to moisten it thoroughly and to produce a cementing action. Agitation is continued at hardening temperatures until the moist mass is converted into substantially dust-free granules consisting of an aggregate of anhydrous silicate particles embedded in a matrix of the detergent compound. Joseph Crosfield & Sons, Ltd. British Patent No. 534,745.

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No. 2,274,632, Process for Purifying Synthetic Soaps, patented March 3, 1942 by John J. Owen, Baton Rouge, La., assignor to Standard Oil Development Co. Process for the preparation of improved synthetic fatty acids comprising heating an aqueous solution of soaps of crude synthetic fatty acids with about 0.5 to 3.0 per cent by weight of a hydrosulfite until the color of the solution is substantially reduced, then acidifying the solution with a dilute mineral acid and separating improved synthetic fatty acids of light color therefrom.

No. 2,274,807, Detergent, patented March 3, 1942 by Albert L. Rawlins and Leon A. Sweet, Detroit, assignors to Parke, Davis & Co., Detroit. A non-alkaline detergent comprising a water-soluble salt of a primary straight-chain alkyl amine in which the alkyl group contains 10 to 18 carbon atoms.

No. 2,275,049, Polish, patented March 3, 1942 by Edwin W. Keller, Allentown, Pa. A stable, indefinitely-keeping, aqueous liquid polishing composition, comprising finely divided, abrasive silica; sodium silicate, substantially unreactive toward the silica, as a detergent; and finely divided calcium sulfate, for preventing hard caking of the silicate with the silica when the composition is allowed to stand and settle.

No. 2,275,596, Polish, patented March 10, 1942 by Leroy W. Shuger, Baltimore, assignor to Baltimore Paint & Color Works, Inc., Baltimore. A liquid polish adapted to be rubbed on a surface to be polished comprising a three phase emulsion of a petroleum hydrocarbon lubricating medium as a discontinuous phase, a polishing base medium as a discontinuous phase, and water as a continuous phase, the polishing base consisting substantially entirely of at least one compound of the group consisting of monoglycerides and diglycerides of fatty acids, the compound being substantially immiscible with the lubricating medium and with the water.

No. 2,276,409, Milk Soap, patented March 17, 1942 by John E. McCormick, Chicago, assignor to Edward J. McLaughlin, trustee. A stable jelly-like soap composition comprising the reaction mixture of at least 80 per cent whole milk having present at least about 3½ per cent of butter fat, an ethanolamine soap of a fatty acid, hydrogenated cocoanut oil, a lower alkyl glycol, and boric acid, the latter three ingredients being present in an amount less than the ethanolamine soap.

No. 2,277,015, Detergent, patented March 17, 1942 by Herbert H. Guest, West Hartford, Conn., assignor to J. B. Williams Co., Glastonbury, Conn. A method for preparing an organic compound suitable for use as a detergent, comprising adding diethanolamine and diethylene glycol to methyl alpha bromo myristate and heating the mixture at about 180 to 200° C. for about 60 to 90 minutes while stirring and refluxing the solvent, removing the solvent and adding potassium hydroxide dissolved in ethyl alcohol, filtering the mixture to remove potassium bromide, and distilling to remove the alcohol.

No. 2,277,158, Insecticidal Composition, patented March 24, 1942 by Wilfred Archibald Sexton, Blackley, Manchester, England, assignor to Imperial Chemical Industries Limited. Insecticidal compositions comprising at least one member of the class consisting of N:N'-di-(1-cyanoalkyl)-substituted aliphatic and heterocyclic diamines and an inert carrier.

No. 2,277,680, Insecticide, patented March 31, 1942 by Euclid W. Bousquet, Wilmington, assignor to E. I. du Pont de Nemours & Co., Wilmington. An insecticidal composition containing as an essential active ingredient a water insoluble sulfurized N, N-diarylarylenediamine characterized in that at least one of the aryl groups is linked to the arylene group in a 1, 4-thiazine ring structure.

No. 2,277,728, Soap, patented March 31, 1942 by Richard Thomas and Henry Bowen Oakley, Bromborough, England, assignors to Lever Brothers Co. A soap product having improved hard water characteristics comprising a water soluble soap of a mixture of soap forming fatty acids, the soap forming fatty acids comprising at least about 10 per cent polyethylenic fatty acids, not more than about 20-25 per cent saturated soap forming fatty acids having at least 16 carbon atoms, and not more than a total amount of about 30-40 per cent saturated soap forming fatty acids, and by weight one part of an alkaline reacting alkali metal orthophosphate calculated as an anhydrous salt to 3.5 to 15 parts of the fatty acids in the soap, the soap product being in a solid finely divided form to ensure rapid solution in water, whereby the soap product may be dissolved in hard water without substantial precipitation of insoluble soaps.

No. 2,277,729, Soap, patented March 31, 1942 by Richard Thomas and Henry Bowen Oakley, Bromborough, England, assignors to Lever Brothers Co. A soap product having improved hard water characteristics comprising a water soluble soap of a mixture of soap forming fatty acids, the soap forming fatty acids comprising at least about 10 per cent polyethylenic fatty acids, not more than about 20 per cent to 25 per cent saturated soap forming fatty acids having at least 16 carbon atoms and not more than a total amount of about 30-40 per cent saturated soap forming fatty acids, and by weight 1 part of an alkali metal polyphosphate calculated as an anhydrous salt to 2 to 5 parts of the fatty acids in the soap, the soap product being in a solid finely divided form to ensure rapid solution in water, whereby the soap product may be dissolved in hard water without substantial precipitation of insoluble soaps.

No. 2,277,730, Soap, patented March 31, 1942 by Richard Thomas and Henry Bowen Oakley, Bromborough, England, assignors to Lever Brothers Co. A soap product having improved hard water characteristics comprising a water soluble soap of a mixture of soap forming fatty acids, the soap forming fatty acids comprising at least about 10 per cent polyethylenic fatty acids, not more than 20-25 per cent saturated soap forming fatty acids having at least 16 carbon atoms, and not more than a total amount of about 30-40 per cent saturated soap forming fatty acids, and by weight 1 part of an alkali metal pyrophosphate calculated as an anhydrous salt to 2.2 to 8.2 parts of the fatty acids in the soap, the soap prod-

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uct being in a solid finely divided form to ensure rapid solution in water, whereby the soap product may be dissolved in hard water without substantial precipitation of insoluble soaps.

No. 2,278,352, Nonefflorescing Bar Soap, patented March 31, 1942 by Robert Franklin Heald, Nutley, N. J., assignor to Colgate - Palmolive - Peet Co., Jersey City. Bar soap comprising a major proportion of a soap base, sodium carbonate in amount ranging up to about 2½ per cent and sufficient to cause objectionable efflorescence in the absence of sodium phosphate, and an alkaline sodium phosphate in amount ranging up to about 9 per cent to give desired hardness and sufficient to prevent substantially such efflorescence.

Hydrogenation of Fish Oils

Experiments on the hydrogenation of fish oil showed that vacuum hydrogenation makes for elimination of bad odors. Products are possible which will be rich or poor in highly unsaturated glycerides as desired. R. Escourrou and S. Lustyger. *Bull. soc. chim.* 7, 445-58.

—— • ——

Petroleum Detergent

Products suitable for use as detergents or wetting agents are produced by treating a petroleum fraction predominating in paraffin hydrocarbons and essentially free from aromatic and unsaturated constituents with a gaseous mixture of sulfur dioxide and chlorine. The petroleum fraction should have an initial boiling point of at least 300 degrees and an end boiling point of at least 360 degrees. The treatment is best carried out in the presence of actinic light. The product of reaction is finally hydrolyzed with a hot solution of caustic soda. Cortes F. Reed and Charles L. Horn. U. S. Patent No. 2,263,312.

—— • ——

Sulfonate-Chloride Detergent

Gas oil is treated with sulfur dioxide and chlorine, both in gaseous form. The sulfonyl chlorine is then hydrolyzed into an organic sulfonate. In the hydrolysis the sulfonyl chloride is converted to a true sulfonate but all of the chloride substitutents remain in the product, which has exceptional washing and wetting properties. John Ross and Dwight J. Potter, to Colgate-Palmolive-Peet Co. British Patent No. 538,408.

Colloid Refining of Oils

The oil or fat containing an electrically charged colloidal suspension is mixed with an aqueous solution containing a colloidal suspension of opposite charge, in an amount such that the electric charge on the added colloid is at least approximately equal to the charge on the impurity to be removed. In an example of a one step process, 2½ parts of the colloidal suspension of chromic oxide together with 0.4 part of 50 per cent caustic soda solution are added to 100 parts of an oil containing 0.8 per cent of free fatty acid. The loss of oil was less with this process than when the standard procedure was used. Color is removed in a two step process. Anderson, Clayton & Co. British Patent No. 537,704.

—— • ——

Fatty Acid Determination

If fatty acids are dried by improper methods considerable loss is incurred. A suitable method of drying to determine the fatty acid content of soaps containing coconut oil is by the use of a 300 cc. Erlenmeyer flask heated at 105° C. without air current. Even glycerine can be dried in this manner at 120° C. It is easier to remove moisture from fatty acids than the last trace of the solvent. Aage Lund and Olav Arstad. *Tids. Kjemi Bergvesen Met.* 1, 32-3, 83-6; through *Chem. Abs.*

—— • ——

Oil Preservation

A glyceride oil is protected against oxidation by disposing the oil in contact with an aqueous solution of sodium sulfite, the latter being immiscible with the oil and capable of reacting with peroxides. Kenneth C. D. Hickman and James G. Baxter, to Distillation Products Inc. Canadian Patent No. 403,495.

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Tomato-seed Oil

The yield of oil by cold-pressing the dry seeds of tomatoes was 17 per cent, by extraction with ether 33.1 per cent. The color is golden yellow. The filtered oil has the constants: n_{15} 1.4771, d_{15} 0.9206, acid number 3.2, saponification number 192.09, unsaponified matter 1.45 per cent, and Hanus iodine number 112.6. The melting point of the fatty acids is 30° C. The oil is suitable as a salad oil and for the manufacture of soap. Maria P. B. Cavalcanti. *Rev. quin. ind.* (Rio de Janeiro) 10, No. 114, 21-3, 345-7.

Mixed Solvents for Soaps

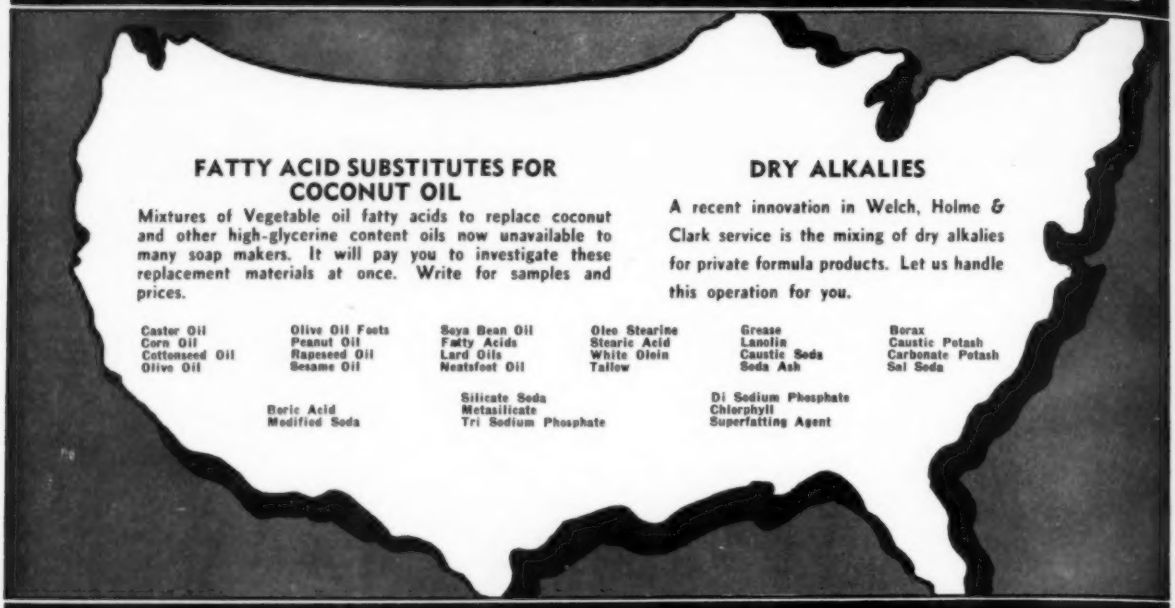
Suitable mixtures of organic solvents have a powerful dissolving action on ordinary soaps, although the individual solvent may not have any such action. Any mixture of a monohydric alcohol and a polyhydric alcohol has a strong solvent action on soaps, even though either alone is a poor solvent at ordinary temperatures. An optimum solvent composition exists where solubility is maximal. For ethylene glycol-ethyl alcohol this is 65:45 parts by weight for sodium stearate. For the same glycol, the higher the molecular weight of the alcohol, the greater is the solvent power.

With suitable mixtures in proper proportions, concentrations of more than 10 per cent can be produced at room temperature, and practically any concentration from a thin fluid to transparent gels at temperatures higher than 40° C.

Hydrocarbons have a peculiar coupler action on these solvent mixtures. Suitable alcohol-glycol-hydrocarbon mixtures have been found which dissolve soap rapidly at room temperature to almost any concentration, not tending to saturation until production of a transparent gel. Various types of hydrocarbons have this coupler action. The latent solvents and couplers so far investigated, in order of their solvent power are indicated in the accompanying table. S. R. Palit. Current Sci. 10, 436-7.

Latent Solvents		*Couplers*
Monohydric alcohols	*Polyhydric alcohols*	*Hydrocarbons*
Iso-Butyl alcohol	Ethylene glycol	Benzene
Iso-Amyl alcohol	Propylene glycol	Turpentine
Propyl alcohol	Diethylene glycol	Cyclohexane
Ethyl alcohol	Glycerol	Heptane
Methyl alcohol	Trimethylene glycol	Hexane

RAW MATERIALS FOR THE SOAP INDUSTRY



FATTY ACID SUBSTITUTES FOR COCONUT OIL

Mixtures of Vegetable oil fatty acids to replace coconut and other high-glycerine content oils now unavailable to many soap makers. It will pay you to investigate these replacement materials at once. Write for samples and prices.

DRY ALKALIES

A recent innovation in Welch, Holme & Clark service is the mixing of dry alkalies for private formula products. Let us handle this operation for you.

Caster Oil
Corn Oil
Cottonseed Oil
Olive Oil

Olive Oil Foots
Peanut Oil
Rapeseed Oil
Sesame Oil

Soya Bean Oil
Fatty Acids
Lard Oils
Neatsfoot Oil

Oleo Stearine
Stearic Acid
White Olein
Tallow

Grease
Lanolin
Caustic Soda
Soda Ash

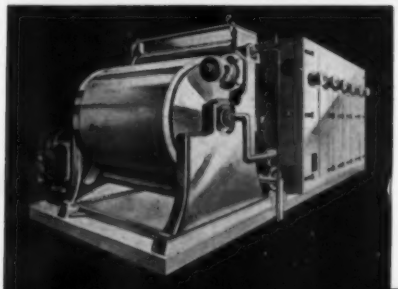
Borax
Caustic Potash
Carbonate Potash
Sal Soda

Boric Acid
Modified Soda

Silicate Soda
Metasilicate
Tri Sodium Phosphate

Di Sodium Phosphate
Chlorphyll
Superfatting Agent

WELCH, HOLME & CLARK CO., Inc.
563 GREENWICH STREET ESTABLISHED 1838 NEW YORK CITY



In producing flakes for granulated soaps, toilet cakes or packaging, high speed output can often be an item of great saving. With the New Proctor Flake Soap System, from the hot liquid soap in the kettle or crutcher to the dried flakes requires only 6 to 14 minutes and capacities may be obtained from 750 to 6000 lbs. per hour, according to flake thickness, character of soap, etc. At this stepped-up production, quicker deliveries are assured and there are tremendous savings in floor space and equipment. Complete details are contained in a new 16-page illustrated catalog that is yours for the asking.

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NEW PROCTOR *Flake Soap* SYSTEM

NEW EQUIPMENT

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York, mentioning the number of the item.

874—Disinfectant Quiz

Baird & McGuire, Inc., Holbrook, Mass., have just brought out a 24-page booklet entitled "Know Your Stuff—a Quiz on Coal Tar Disinfectants," which presents in question-and-answer form facts about coal tar disinfectants. Such subjects as uses for disinfectants, phenol coefficient, laws regarding disinfectants, germicidal activity, methods of preparing emulsions, and disease control are discussed concisely in language readily understandable by the public.

—— ♦ ——

875—Pressure Instruments

A new catalog, No. 76JF, fully describing the bourdon spring, bellows and manometer type instruments for indicating, recording and controlling pressures in industrial processes, is currently being distributed by Taylor Instrument Co., Rochester, N. Y. Information on gauge, differential and absolute pressure and vacuums is included in this comprehensive illustrated catalog.

—— ♦ ——

876—New Hydrocarbon Waxes

The phosphate division of Monsanto Chemical Co., St. Louis, has just made available three new types of hydrocarbon wax, designated as "Santowax" M, O, and P. The new materials are supplements to "Santowax" regular. Preliminary investigations have indicated the new materials have potential usefulness in compounding polishes and waxes. "Santowax M" is a microcrystalline wax with a melting point between 181° F. and 194° F. "Santowax O" is an oily crystalline material with a melting point lower than 122° F., while "Santowax P" is a nearly white crystalline material with a melting point in the neighborhood of 410° F.

—— ♦ ——

877—No-drip Coating

"Nodrip," a new plastic cork coating to stop dripping from condensation and sweating in laundries and other moist working rooms, is made by J. W. Mortell Co., Kankakee, Ill. It can be applied with a whisk broom or paint brush to brick, plaster, tile, concrete, metal, wood or painted surface, and can itself be painted.

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878—Deodorized Naphthas

"Deodorized" naphthas, not to be confused with so-called "odorless" naphthas, are now being offered to the trade by Anderson-Prichard Oil Corp., Oklahoma City, Okla. According to the producer, the residual odors or the polar compounds that give residual odors are, under the "Deodorized" treatment, either completely removed or removed to such a degree that they are not noticeable even before the naphtha is completely evaporated. Less perfume is required to impart the desired odor in finished spray products made from the new naphthas, it is claimed.

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Quaternary Ammonium Salt

A quaternary ammonium salt is produced by the reaction, under anhydrous conditions, of formaldehyde, an aliphatic glycerol having at least one hydrogen attached to each carbinol carbon atom, a saturated aliphatic ditertiary diamine, and a nonoxidizing, inorganic, anhydrous acid. Donald D. Coffman, to Canadian Industries, Ind. Canadian Patent No. 403,615.

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Glycerine Recovery

A procedure to be followed to secure the highest possible glycerine yield in soap manufacture is described in an article by William J. Govan, Jr. of the Pacific Soap Company, San Diego, in the April, 1942, issue of *Oil & Soap*. Mr. Govan outlines a kettle plan which he says will yield a well cleansed neat soap with a predictable high glycerine recovery.

Study of Geoffrey Heyworth

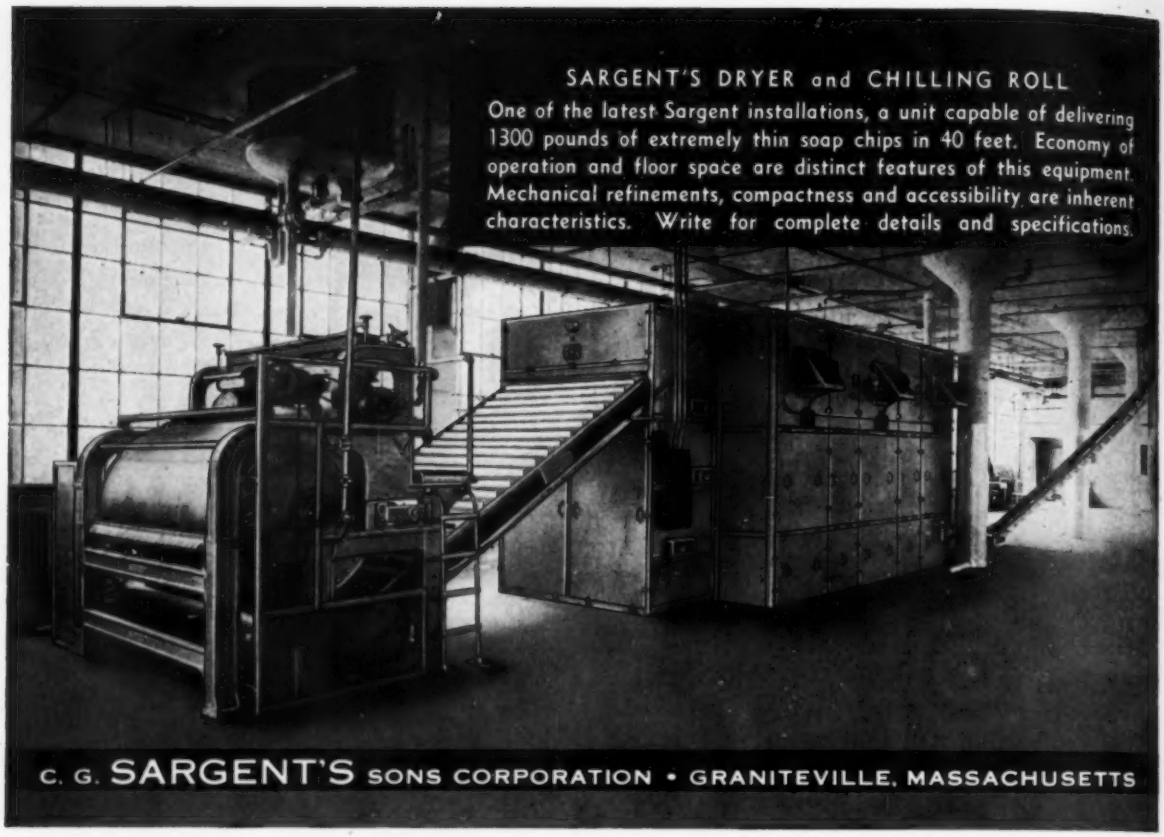
(*From Page* 29)

should devote as many hours to fire-watching and home guard duties as does a crossing sweeper. Today, of course, the necessity of equality of sacrifice is recognized. Mr. Heyworth was an early member of the Local Defense Volunteers, now the Home Guard, and with the rank of Major, commands his local company in Surrey.

He has a dry humor. As "A Platoon Commander" he wrote a sketch of conditions at his Surrey headquarters in "The Citizen Warrior," a wartime magazine serving as link between the Lever Company and the members of the staff in the armed forces and on national service. That sketch subtly conveys the atmosphere prevailing in all such groups engaged in homeland defense. ". . . Generally it may be said," he writes, "that since the pub is the real centre of any properly designed village, village defense has the most devoted band of adherents among the rank and file. 'Observing' would undoubtedly take a high place if issues were made of revolving chairs. Units of the Regular Forces have been observed 'observing' in this way."

There you have the whole "feel" of village life in wartime, and only those who do not know the British would mistake that air for one which lacked seriousness. Mr. Heyworth's comments were written 18 months ago and since then the Home Guard, though yet untried in actual combat, has become a formidable and efficient force.

The accompanying portrait, even in its static way, projects more of his character than any words. It is not a particularly recent one,—he is sturdier in face and figure than it conveys—but every essential of that personality may be read in the direct, humorous eyes—the determination, the intelligence and the understanding.



SARGENT'S DRYER and CHILLING ROLL

One of the latest Sargent installations, a unit capable of delivering 1300 pounds of extremely thin soap chips in 40 feet. Economy of operation and floor space are distinct features of this equipment. Mechanical refinements, compactness and accessibility are inherent characteristics. Write for complete details and specifications.

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VALENCIA—*The Standard of American Pumice*

It's not a substitute for the now unobtainable Italian pumice but is chemically and physically equal in every respect. Note its comparison.

	American Pulverized Per Cent	*Italian Select Per Cent*
Silica	72.90	73.24
Alumina	11.28	10.61
Iron Oxide	.86	1.57
Titanium Oxide	.06	.10
Calcium Oxide	.80	1.10
Magnesium Oxide	.36	.40
Soda	3.64	3.03
Potash	4.38	5.58
Sulfuric Anhydride	.03	.05
Loss on ignition	5.20	4.04

Valencia is a true pumice stone and not a volcanic ash. *VALENCIA PUMICE IS A UNIFORM PRODUCT IN ITS HIGH QUALITY. ITS SUPPLY IS UNLIMITED.*

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2452

New Soap Process

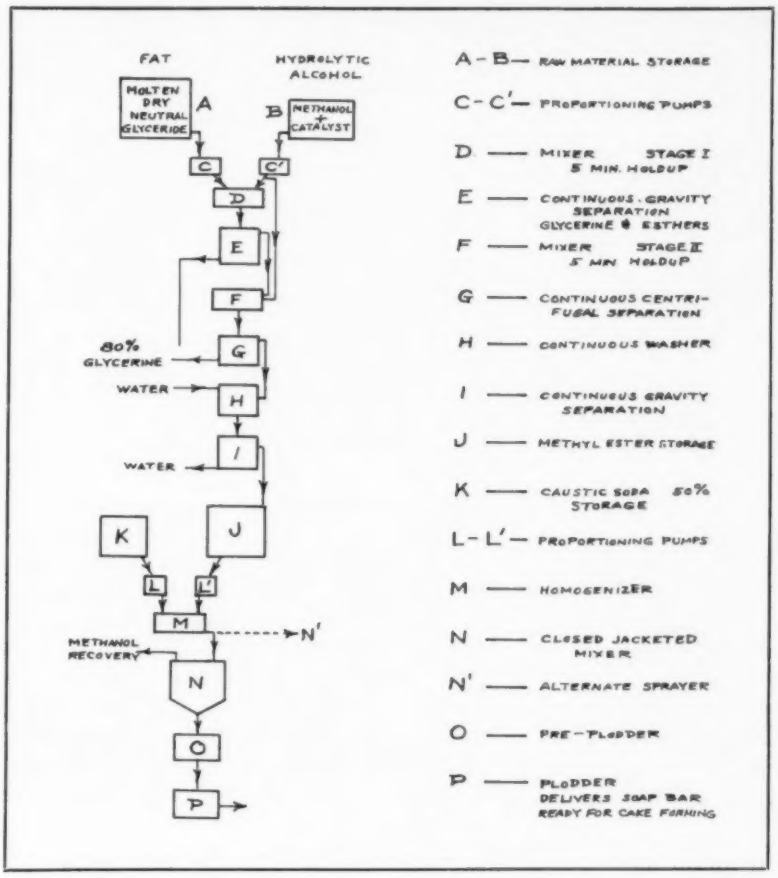
(*From Page 24*)

acid ester which has many decided advantages over free fatty acids as obtained by the customary fat splitting processes. The esters are rather fluid liquids even at room temperature. They do not contain any appreciable amount of water. If it is desired to refine them by distillation, they do not offer the serious problems which characterize the customary fatty acid purification, namely the treatment of acid (corrosive) materials at very high temperature. The esters are neutral substances and have considerably lower boiling points than the corresponding fatty acids.

In saponifying fatty acid esters with caustic, the alcohol is set free again from the ester, and being very volatile, it can be recovered and re-used. For special purposes it may be desirable to leave a portion of the alcohol in the soap, epecially when the alcohol chosen is ethyl alcohol. If the caustic is added in anhydrous form (for instance in solid form or as alcoholic solution) the resultant soap is completely anhydrous without any drying operation. If fatty acids are saponified with anhydrous caustic, water is set free and the soap is not anhydrous, but will contain 5-10 per cent water.

If it is desired to make ordinary soap with 10-15 per cent moisture, an aqueous caustic solution is used for the saponification. The presence of alcohol in the mass as soon as the reaction has started facilitates the saponification considerably because the alcohol is a solvent for both caustic and fatty acid ester and promotes their rapid contact. This makes possible a very fast and complete saponification at temperatures well below 200° F. For this reason the process is readily adaptable to continuous spraying processes for the production of comminuted soap.

In sum, by working in accordance with U.S.P. 2,271,619, it has now become possible by the intermediary of an alcohol to convert soap stock into soap and water-free glycerin in a period of a few hours, with very little heat imput, at temperatures not exceeding 212° F. and in very compact and simple equipment which has to resist neither corrosive conditions, pressure or vacuum, nor elevated temperatures. The only auxiliary material, an alcohol, can be fully recovered and re-used.



EXAMPLES taken from the patent specification indicate some of the applications of the process as follows:

One thousand parts of refined Cochin type coconut oil are heated to about 80° C. and then is added five parts of dry caustic soda and 240 parts of commercial anhydrous (99.7%) methanol. The mixture is stirred for a few minutes and allowed to stand three hours. The lower layer is drawn off and the floating oil (consisting of methyl esters) is washed three times with a small amount of water each time. Conversion is found to be 98.0 per cent. The wash waters are removed by allowing the washed oil (mixture of methyl esters) to float and drawing off the bottom watery layer. The unreacted methanol and a small amount of soap and oil are recovered from the glycerine plus wash water by neutralizing with acid, adding about 50 per cent water, distilling off the methanol, separating the oil and soap by gravity. The glycerine is distilled under vacuum to concentrate it.

The floating oils, that is the methyl esters of the coconut oil acids, are subjected to vacuum fractional distillation to top off or remove the lower esters, e.g. the C_8, C_8, and C_{10} methyl esters. The mixture remaining in the still of 830 parts consists of higher methyl esters, e.g. esters of C_{12}, C_{14}, C_{16} and C_{18} acids, and is then treated by one of the following procedures:

Procedure A

To 120 parts of the above-described higher methyl esters at temperature 30° C. was admixed 50 parts of a solution and suspension of caustic soda in methanol containing 20 parts caustic soda. The temperature of the mass immediately began to rise, reaching 37° C. The mass was pulverized and warmed to 70° C. and held to constant weight. A neutral pure anhydrous soap of mixed fatty acids which was crystalline in nature was produced.

Procedure B

Approximately 20 parts of 99% caustic soda as a fine powder was mixed with 120 parts of the above-described higher dry methyl esters of coconut oil acids. The mixture was warmed under agitation and then pulverized and heated to constant weight. An anhydrous soap was obtained.

Procedure C

To 237 parts of the above-described hot higher methyl esters (temperature about 50° C.) was admixed 80 parts of a 50% water solution of caustic soda to a homogeneous emulsion. In 2½ hours 97% of the caustic soda had reacted and a fairly hard mass

was formed. This was reduced to particles, dried so as to contain very little alcohol, and about 10% water, and formed into cakes of practically neutral soap.

Procedure D

To 120 parts of the esters at temperature 30° C. was admixed 50 parts of a solution and suspension of caustic soda in methanol containing 20 parts caustic soda. This mixture was sprayed into the top of a tower against a current of rising hot air. The hot air from the top of this tower was washed with water to recover the methyl alcohol. From the bottom of the tower was recovered a pure anhydrous soap of mixed higher fatty acids of coconut oil.

ONE thousand parts of refined bleached cottonseed oil was treated with 170 parts of methanol and 5 parts of caustic soda as described above. The glycerine and excess methanol was removed by decantation and washing. The oily top layer consisting of the methyl esters of cottonseed oil acids was mixed with 290 parts of a solution and suspension of caustic soda in methanol containing 114.5 parts caustic soda. The mixture was masticated in a Werner and Pfleiderer type masticator with, initially, steam in the jacket of the masticator. The temperature was not allowed to rise above 100° C. As soon as the greater part of the alcohol had evaporated off there was added 5 parts of powdered titanium white and 50 parts of a mixture of glyceryl mono oleate and glyceryl mono stearate. When complete admixture had been effected the mixture was formed into hard cakes under hydraulic pressure. There resulted a white neutral soap comparable in hardness to soaps ordinarily made from hard fats.

The range of glycerides available for producing soap directly by this process is greater than that available for the old processes because harder soaps can be made from liquid glycerides. In place of the specific glycerides described above may be substituted other animal and vegetable fats and oils which have been used for the production of soap. As examples of additional suitable materials, mention is made of olive oil, palm oil, sardine oil, castor oil, whale oil, linseed oil, stearin, tallow, cocoa butter, etc.

The preparation of the esters of the fatty acids preparatory to making soap from them as taught herein is not limited to the specific alcohols above named, but other alcohols may be used. Thus, saturated aliphatic alcohols having from 1 to 5 carbon atoms have utility. The preferred alcohols are saturated aliphatic monohydric alcohols boiling below about 100° C. and especially below about 85° C. As examples of additional suitable alcohols mention is made of ethanol, propanol, the butanols and the pentanols. Of these those which are water miscible and most volatile are preferred. An amount of alcohol above 1.75 equivalents or use of an alcohol with great intersolubility powers with glycerine such as methylpropylcarbinol will tend to prevent or prevent the glycerine from settling to the bottom and separating as an easily removable phase.

One important embodiment of the invention is concerned with the use of caustic potash as the saponifying agent in the above procedures, whereby hard potash soaps are formed. These soaps are believed to be new mixtures and have great utility in the arts. The potassium soaps of the more highly unsaturated glycerides, e. g. those prepared from cottonseed, linseed, sardine, etc. oils being hard, light colored and crystalline in nature are quite valuable and have many uses in the arts.

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Perfume in Germicidal Soap

Perfumes in germicidal soap should themselves be of a more or less phenolic character. An aromatic meeting these requirements is oil of cloves, containing eugenol. Oils such as lemongrass, bergamot, camphor, thyme and tar oil, are nonphenolic and exhibit a marked inhibiting action on the germicidal properties of the soap. When the more active phenols such as alkyl phenols, alkyl resorcinols, and alkyl cresols, are used in germicidal soaps, they need be present only in a proportion of 1-10 per cent by weight, so that the soap will retain its detergent nature. Only completely saturated fatty acids should be used in such soaps or the germicidal activity will be lowered. If 25 per cent of the sodium stearate is replaced by an equal molecular proportion of sodium oleate, the germicidal activity is reduced by approximately two-thirds. It is also especially important that saponification be complete. (*Manufacturing Chemist* 13, No. 2, 38 (1942).

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Aliphatic Acids and Esters

Aliphatic acids and their esters are prepared by the reaction of carbon monoxide with saturated aliphatic monohydric alcohols at 150-400° C., and 25-900 atmospheres' pressure. The reaction is carried out in the presence of an inorganic complex obtained by the absorption of boron fluoride in an inorganic acid. Donald J. Loder, to Canadian Industries Ltd. Canadian Patent No. 403,604.

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Enzyme as Soap Saver

An enzyme preparation prepared from the pancreatic juice of animals can be used to save soap, since it dissolves proteins and fats. Practical washing procedures with such preparations demonstrated the feasibility of their use where acute shortages exist. Alexander Zscharn. *Fette und Seifen* 47, 463-4; through *Chem. Abs.*

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New Laundry Bleach

A new chemical product, No-Clor, is offered by Kohnstamm & Co., New York City, as a laundry bleach said to remove stains, at the same time reducing tensile-strength loss. *The Laundryman* 8, No. 3, 22 (1942).

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Fatty Acids

(*From Page* 22)

of certain oils means that many soapers who in the past have depended strictly on the whole oils will of necessity be forced to use fatty acids, and will undoubtedly discover their advantages which heretofore these same soapers have sometimes been loath to investigate.

Practically all purified fatty acids produced today are free of iron and other metallic compounds. Costly equipment has been installed to insure this freedom from metals. Further to insure arrival of uncontaminated material at destination, all fatty acids for use in the manufacture of alkyd resins and for any other purposes where color is of importance, are shipped in specially acid-resistant lined drums. Drums are regular 55 gallon packages with 2" opening in the side and 1½" opening in the head. The acid-resistant lined drums are available in either the closed or fully removable head types.

The high melting point fatty acids, such as palm and high titre cotton, are shipped in wood barrels as there is no danger of leakage even in warm weather. These materials are more easily removed from barrels than they would be from drums of any type. The average wood barrel holds about 375 lbs. of material. When conditions are such that shipments can be received in tankwagons, deliveries may be made in aluminum tankwagon to preserve color, or in regular tankwagon when color is not of importance. Shipments of fatty acids for uses where color is not of importance are also made in regular tankcars.

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INSIDE NEWS

MAY PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1942

National's Research Department Goes Into The Field

One of the several Divisions of National's Research Department is the Research Field Service.

The Headquarters of the Research Department at Baltimore has complete bacteriological, chemical, experimental canning and testing laboratories. The Research Field Service Division to which the bacteriological laboratory is attached is the Division whose trained field men convey to the canners, through personal visits, the information gathered from the results of research and developments of the laboratories. Through such visits the results of Research can be practically applied in the canning plants.

The men in National's Research Field Service work have had college training in chemistry and bacteriology. These two sciences cover the broad fundamentals of the canning process and therefore serve as the best background possible.

To crystallize the knowledge obtained in their university training, further instruction is given in all phases of canning procedures as well as instruction to acquaint the men with all the various types of equipment used in canneries.

The accompanying photograph illustrates future field men receiving instruction in one of the most important phases of their work. Usually, after being filled and sealed, cans of foods must be processed (sterilized) properly in one of the various types of retorts. Realizing the vital importance of this phase of the canning process, special emphasis is placed on the study of retorts and their operation in the training of National's Research Field Service Men. This and other phases of their course of training are carefully covered so that these field men can give the canners practical advice when called upon. By virtue of their complete training, they are ready to help canners prevent unnecessary spoilage in their plants. Through this service, not only essential food supplies, but tin cans as well, will be conserved in a year when our country is bending every effort to obtain maximum production. "RESEARCH IS ORGANIZED THINKING." (121)

Future Field Service Men receiving instruction in retort operation and heat penetration.

Instrument Sterilization With Glycerine

Doctors, nurses, veterinarians, laboratory technicians and others who work with instruments that require thorough sterilization will be interested in an inexpensive glycerine-containing solution for this purpose. The solution consists of a 2 percent compound cresol solution and 5 percent glycerine in a mixture of equal parts of water and alcohol.

This preparation has proven highly effective for the sterilization of instruments. It is stated all pathogenic bacteria are killed in one minute or slightly longer. This mixture is less expensive than commercial preparations used for routine sterilization. Moreover, the solution is said to prevent rusting. (123)

Promising Varieties of Cherries

Twelve varieties of sweet cherries have been tested and recommended as worthy of trial by a New York State fruit testing association. Three of these new varieties were originated at the New York State Agricultural Experiment Station, Geneva, N. Y. Of these three, Seneca has probably attracted most attention because of its earliness. It ripens fully two weeks ahead of Black Tartarian, the standard early sweet cherry, and is described as having a rich, sweet flavor and purple black juicy, melting flesh. The tree is vigorous, healthy and productive.

The two other varieties developed at Geneva are Gil Peck and Sodus, these being obtained from the same cross. The Gil Peck is a large, purplish-black cherry similar to Giant and as good in quality as that variety. It is a mid-season variety, ripening a little later than Schmidt. Sodus is a light-colored, firm-fleshed sort, and is rated as the best of the light-colored seedlings thus far produced from the station grounds. It is an early mid-season variety.

The other varieties believed worthy of trial are Early Rivers, Emperor Francis, Giant, Geant d'Hedelfingen, Lyons, Noir de Guben, Schrecken Bigarreau, Victor and Vernon. (122)

New Food Standards

Four additional tentative standards for food products have been issued recently by the Agricultural Marketing Service of the United States Department of Agriculture, Washington, D. C. These include AMS Standards for canned fruits for salads, canned pears, canned orange juice and processed raisins.

These standards are intended to serve as a convenient basis of sale in wholesale transactions and as a basis for determining loan values on hypothecated stocks. They will also form the basis for the official grading service similar to that now available on fresh and canned fruits and vegetables and other processed foods. (124)

(Advertisement)

BY NATIONAL CAN

MAY PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1942

"Turpentine Belt" Replaces Japan As Camphor Source

For many years the United States has been Japan's largest customer for natural camphor —a product which that country obtains from the camphor trees of Formosa. In 1940, our imports of camphor aggregated more than one million pounds valued at $500,000.

For a good many years the United States has been producing synthetic camphor from turpentine, but now our supplies will come entirely from the chemical retort. We have plenty of raw materials. The area stretching from the Carolinas to Texas, known as the "Turpentine Belt," has supplied 60 percent of the world's total output of turpentine and rosin. To care for our increasing demands, the output this year will be increased 50 percent over that of 1941.

Naval stores (turpentine and camphor) are used in the manufacture of paints, paper, soap, varnish, printing ink, synthetic camphor, adhesives, plastics and chemicals. (125)

Canned or Home-Cooked Foods

While canned foods may in general be rated equal to home-cooked foods, canning has an advantage in obtaining field-fresh vegetables. This is particularly true in the case of perishable foods, since home-cooked vegetables are generally obtained from markets and may be several days old when cooked. Losses of mineral salts and carbohydrates are about the same in either case. To retain vitamin C in canning, an efficient heat exhaust, with minimum headspace left in the closed can, is important for prevention of loss by oxidation. But loss of both vitamin B_2 and C comes mainly through leaching. Therefore, retaining the liquid in which the vegetable is cooked is an important conservation measure whether in canning or in home-cooking. (126)

Something New In Georgia Peaches

Successful cultivation of a new type of peach in Georgia has been reported recently. It is a firm, yellow-fleshed clingstone peach, named Amber Gem. Experiments show it is of excellent quality for canning. Amber Gem also can be picked in August after peaches for the fresh market have been disposed of. The new peach originated in New Jersey, was transplanted and cultivated in Michigan and was then brought to Georgia.

Prior to Amber Gem's successful introduction into Georgia, little peach canning had been done in that state because Elberta, which constitutes the principal peach crop, is too soft for this purpose. (127)

War Won't Bar Iceland Trade Agreement

Negotiation of a trade agreement with Iceland will probably continue despite entry of the United States into the war. Tariff reductions may be made on dried and unsalted fish; prepared and preserved fish; pickled or salted fish; smoked or kippered fish; caviar and other fish roe; fish scrap and fish meal; cod and cod liver oil; herring oil; and certain other fishery products. (128)

Corn Ice Cream Wins Approval

Vegetable ice creams made by the dairy manufacturers division of a midwestern university were served recently to a men's luncheon group in Urbana, Illinois. Purpose of the new dessert course was to demonstrate what we can do if materials now commonly used become highly restricted or unobtainable. These ice creams were made with canned corn, canned peas, carrots, frozen spinach and canned spinach. Best liked was one made with corn; least popular, one made with peas. (129)

Army Looks to Meat Canners for New Foods

New canned meat products that the Army would welcome from commercial canners include a liver product, sterile canned hams, a new type of canned sausage, an improved roast beef, a product containing egg, and canned chicken or turkey with a much higher percentage of broth than the solid-packed product currently produced chiefly for the Federal Surplus Commodities Corporation. The Quartermaster would also welcome sterile, canned whole milk without the overcooked taste of evaporated milk. Another desirable item is a spread for bread that can be used for expeditionary forces in hot climates. The Subsistence Research Laboratory of the Army has been asked to develop a special "Mountain Ration" suitable for use in extreme cold. Suggestions from canners will be gratefully received.

Already canners are working on a beef-and-noodles product, pork hash, corned pork and chopped ham, a concentrated soup stock or gravy, Hungarian goulash, cheese and bacon and cheese and ham. (130)

Technical Topics

LIQUID SUGAR, according to claims in a recently issued patent, can be protected against decomposition by the addition of acetaldehyde prior to storage. (131)

EGG MEATS are removed from the shell through a hollow needle to which a vacuum is applied in a method patented recently. (132)

RICE OIL—A substitute for olive oil is seen in purified rice oil, for which analytical constants are presented. (133)

TOMATO SEEDS have commercial value in Brazil. A drying oil has been extracted that is useful in the manufacture of varnish. Residue is used for animal feed and organic fertilizer. (134)

NEW QUININE PLANTATIONS in South America to replace our losses in Java will not be productive for ten years. (135)

TOOTH POWDERS are being promoted by English dentifrice manufacturers under wartime conditions. (136)

NEW INSECTICIDE—PHTHALONITRILE is a new insecticide, acting both as a stomach and contact poison on insects. In recent tests, the new chemical proved superior to derris. (137)

LECITHIN is an ingredient in a dry-shave lotion formula recently presented in a British pharmaceutical journal. Other ingredients were alcohol, witch hazel extract, perfume, and a wetting agent. Astringent in nature, the lotion was said to produce more satisfactory shaving by inducing the hairs of the face to straighten due to skin contraction. (138)

SUBSTITUTE FOR SHEET CORK—A new heat insulating material, developed by a British company for use in refrigerator linings as a substitute for sheet cork, utilizes peat as its basis. Laboratory tests have shown the new product to be equal to cork in thermal efficiency and in addition to be lighter in weight. (139)

For further information on any of these articles write to National Can Corp., 110 E. 42nd Street, New York City. Please mention the number at end of article—also name of the magazine you saw it in.

(Advertisement)

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Faced by the ever-increasing shortage of alcohol . . . many a manufacturer has solved this problem readily by using water soluble perfumes —AQUAROMES. • Felton AQUAROMES are delightful perfumes, completely soluble in water . . . without the slightest trace of oil film or cloudiness. You'll be pleased by their economy, too!

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Because one source of supply makes both containers and closures, it will pay you to get the complete package. Your friendly Anchor Hocking packaging engineer is also at your service if you wish the containers or closures separately.

Worth looking into! *Anchor Hocking Containers and Closures for* INSECTICIDES

These Anchor Hocking Narrow Mouth Rounds are ideal for pint and quart packages of insecticides—an important point to remember if packing restrictions have created a problem for you. Container at left has a capacity of 32 ounces. Container at right has a capacity of 16 ounces. Twenty-one other Narrow Mouth Round Containers are available, ranging in size from one-half ounce to 160 ounces.

The Anchor Molded Cap . . . Impervious to acids, alkalis, moisture, heat, cold, alcohol, oil. Has liner recess and liner retaining ledge which permit use of a larger liner than ordinary caps, assure more dependable, air-tight, leak-proof seal. No buckling or wrinkling, cutting or wearing out of liners as cap is applied or removed. For liners lie flat, can rotate.

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--war has stopped production of rich, dark, Maryland Blue Bottles

But—

--the same smart designs are being made in clear Maryland Flint

WPB Order No. M-39-b, effective May 1, 1942, prohibits our use of cobalt—the coloring ingredient of Blue glass. For that reason, the manufacture of bottles and jars of the deep, royal shade known as Maryland Blue has been discontinued . . . But—only the famous Maryland Blue *color* has been drafted. The same high quality and smart styling—the same designs and sizes—are being duplicated in clear, sparkling Maryland Flint.

BLUE WILL BE BACK. . . In post-war competition you'll need more than ever the ability of Maryland Blue to "stop the eye and start the sale." Put a note in your post-war plans file: "Look into the sales and merchandising advantages of Maryland Blue Bottles and Jars."

Maryland ~~Blue~~

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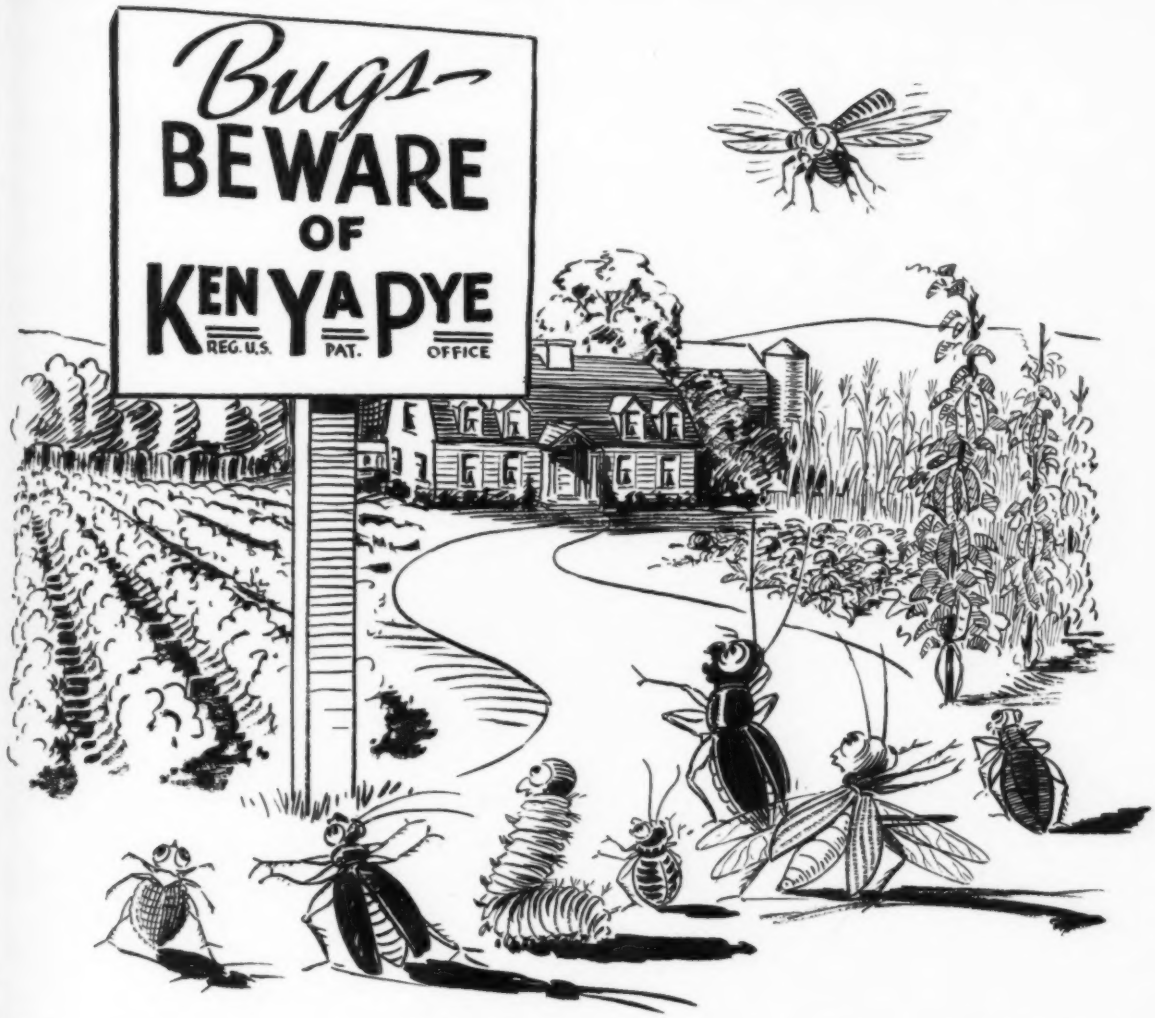

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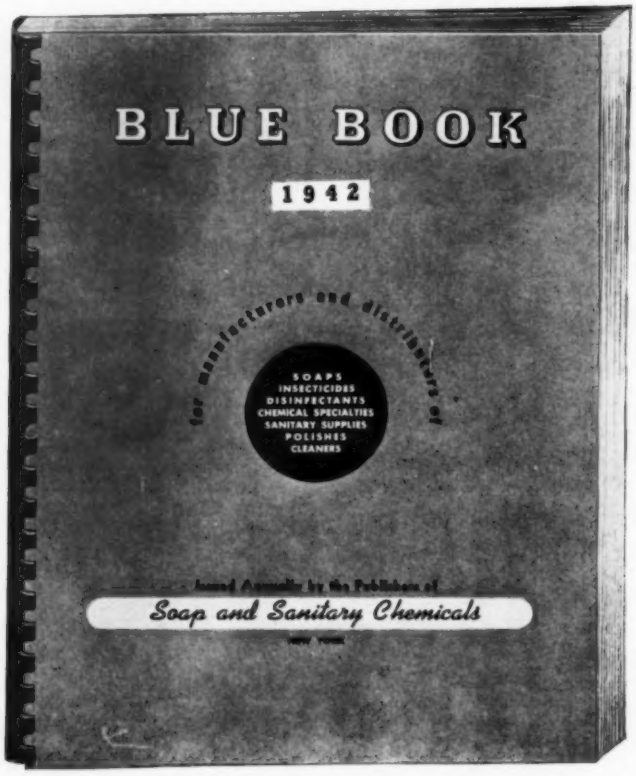

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FOR MORE than thirty years Niagara Alkali Company and Electro Bleaching Gas Company have been working side by side, each serving its customers separately. Today their manufacturing, research and personnel facilities are unified into one compact organization, geared for service on a more efficient scale. Resources and products remain the same, as do the friendly customer relations that have been built up over the years. But the new organization is prepared to give smoother, more satisfactory service — and to respond with a fuller measure to the demands of the industries that use its products. The name of this new organization is NIAGARA ALKALI COMPANY.

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The first test of any insecticide is whether it kills insects. Many substitutes or combinations of pyrethrum and pyrethrum substitutes have been tested only on *ordinary household insects.* A cattle spray, to be effective, must kill insects known to be more resistant. Pyrocide 20 not only kills flies and mosquitoes, but also many other blood-sucking insect pests such as lice, ticks and fleas.

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Milk contamination can be kept at a minimum by using Pyrocide 20 and highly refined oil, whereas many of the pyrethrum substitutes are likely to impart disagreeable odor or flavor to milk.

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Pyrocide 20 causes no injury of any kind to the animal sprayed.

5. ***Has the active principle you are using been tested and well established?***

Pyrocide 20 has been on the market longer than any other standardized pyrethrum concentrate or pyrethrum substitute. It has been used in cattle sprays with highly satisfactory results for 12 years.

Pyrocide 20, Deodorized and Clarified—guaranteed to contain 2 grams of pyrethrins per 100 cc. (Seil method)—now is lower in cost! Pyrocide 20, Regular, the original chilled, filtered, standardized pyrethrum concentrate is offered at even lower prices than Pyrocide 20, Deodorized and Clarified. Write today for full information and new low prices.

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● There's a reason why the housewife will prefer one insecticide to another. Both kill effectively, yet one is more pleasant to use, nicer in the home. This is the job that proper, scientific perfuming can do, perfuming that unobtrusively covers the obnoxious kerosene odor but leaves no perfumy pall.

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SANITARY PRODUCTS

A SECTION OF SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

WHAT of pyrethrum? Available stocks in the United States right now are none too heavy. But in the hands of insecticide manufacturers and in other distributing channels, there are reported to be ample supplies for the needs of the coming season at least. And several large shipments are stated to be afloat to this market from Kenya, that will not only relieve the situation here, but will provide an excess for an anticipated increase in the demand for agricultural purposes for some months to come and help fill the gap caused by restrictions on rotenone products. Kenya tells us that increased shipments will continue to come forward at regular intervals and that production will be expanded there if necessary. What with this and insecticide materials from other sources, it does not appear that insect control is likely to bog down too greatly over the next six months unless pyrethrum stocks here are frozen by W.P.B. order.

COMPLAINTS have reached us that in the present buying scramble, the Army and other Government departments are purchasing certain types of insecticide materials of rather questionable value. Some items with formulas that are generally recognized in the insecticide industry and by Department of Agriculture experts to be outmoded and inefficient, are reported to have been bought recently. Several types of products have been mentioned, including some proprietary items, one of which in particular came in for special reference, a mixture of fifty-fifty borax and inert dust for use as a roach powder. By the time any such product could clean out a bad roach infestation, the insects would just about cart the building away. Maybe these Government buying agencies might well ask for advice before they spend public money for any such junk. We suggest that they consult the U. S. Department of Agriculture.

ALL emphasis in insect control today is on agricultural phases of this problem,—protection of the nation's food supply. We fully agree that this is where it belongs. But let us not forget,—and let the W.P.B. not forget either,—that there is more to protecting food from insect damage than spraying the crops in the field. This is undoubtedly the main problem, but don't forget food in storage, in transit, in processing plants, in homes, in restaurants, in army camps. Don't forget our milk, dairy and meat supply. They are foods, and insects destroy millions of dollars worth of them every year. Don't forget our sheep, cattle, hogs, and other farm live stock, and the insect-borne diseases, the ticks, fleas and lice, and the toll which they take. Don't forget that moths ruin a quarter-billion dollars worth of woolens every year. And once again, we would like to remind the W.P.B.,—protecting the nation's food supply against insects goes much further than just killing beetles on the vine.

DEODORANT SPRAYS . . .

What are manufacturers doing to replace scarce formaldehyde in this type product?

ONE of the first war casualties in the sanitary products list has been formaldehyde sprays. When the first W.P.B. order came out last Fall,—putting formaldehyde on the priorities critical list and denying it to manufacturers of formaldehyde sprays for ordinary civilian use,—manufacturers of deodorant sprays started looking hopefully around for the substitutes they confidently expected to find. Various items in or near the phenol group they surmised might be usable,—but there turned out to be little relief in this direction as most of the phenols were either harder to get than formaldehyde, or else of little value as spray ingredients. The same situation prevailed on such possible replacements as thymol, chlorthymol, pine products, methyl salicylate and eucalyptus.

Manufacturers have great faith ordinarily in the versatility of the raw material supplier's laboratory, and his ability to work out some usable replacement material for products which must be diverted to war use. The problem of working out a replacement for formaldehyde for use in deodorant sprays, however, has not up to this point yielded any satisfactory solution. The particular feature of formaldehyde which has made it the generally accepted ingredient of a deodorant spray is that it is a water-soluble gas with good deodorizing properties. What is needed to replace it is another readily available, inexpensive, non-poisonous water soluble material with similar deodorizing properties. No such substitute has yet been brought forward by suppliers and the failure of manufacturers of deodorant sprays in the past to do any experimental work of their own with replacement materials has now come home to roost.

To fill the gap, most suppliers have in the present situation turned to straight water-soluble perfume type sprays, which rely merely on the theory of covering the odor to be masked, rather than attempting any deodorizing in addition, which the formaldehyde sprays are supposed to do. In spite of the fact that many products of the deodorant spray class are in partial eclipse at the moment, due to the formaldehyde shortage, the following survey may be timely.

There are two ways of getting rid of an unpleasant odor: by removing it entirely through adsorption or washing, or by covering it with another more pleasant odor. It is on this latter principle that theatre sprays of the perfume type operate. Air conditioning, of course, employs the first named principle.

Air conditioning engineers have contributed much in recent years to make life more pleasant for us. Modern buildings, theatres, restaurants, hotels, and homes are equipped with air conditioning almost as a matter of routine, and many old buildings, in recent years, have been improved tremendously through the installation of modern ventilation systems.

But how about the thousands of public buildings which have not been so equipped? That is where deodorant sprays come in. And the role they play, although more humble than air conditioning, is still an important one. Ventilation engineering has not yet driven deodorant sprays from the market, nor will their days of usefulness be over until every public building in the land has been air conditioned.

All theatre sprays now on the market are of three general types: water-soluble perfume sprays, alcohol sprays and formaldehyde sprays. Some are combinations of two or all of these types.

Water-soluble sprays consist simply of a small percentage of perfume oil, an emulsifier, water, and perhaps a fixative. Depending on the proportion of emulsifier which is present, the final product may be either water white or milky. In the latter case, a small amount of coloring matter is usually added to give the spray a distinctive appearance, in keeping with its odor characteristics.

Examples of water-soluble type spray formulations are as follows:

(1)	Sassafras oil	1.5
	Bornyl acetate	2.5
	Rosemary oil	1.0
	Spike lavender oil	0.5
	Geraniol	1.0
	Pine oil, steam dist.	3.5
	Sulfonated castor oil	50.0
	Distilled water	40.0

In the above formulation, the proportion of sulfonated castor oil necessary for producing a satisfactory emulsion depends on the quality of sulfonated oil used. The better the quality of the sulfonated oil, the less is required.

(2)	Perfume compound	45.0
	Oleic acid	3.0
	Triethanolamine	1.5
	Distilled water	50.5

It may be seen from the above examples that the proportions of the various components may vary widely in different formulations. And the types of perfume oils and emulsifiers used also vary. As a general rule, however, the spray manufacturer does not compound his own perfume oils but buys them already compounded for the purpose, with or without emulsifiers already added. Commercial wetting agents are also commonly used as emulsifiers.

Water-soluble sprays, like other theatre sprays, are used in either hand

or power sprayers, or automatic diffusors, sometimes being introduced into air conditioning systems.

DEODORANT sprays of the alcohol type are even simpler in composition than water-soluble sprays. They have the added advantage of greater volatility, and for this reason are considered more effective. Ethyl alcohol, such as denatured alcohol S. D. 27B, or iso-propyl alcohol are commonly used as solvents for the perfume.

Examples of alcohol type formulations are as follows:

(3)	Menthol	3.0
	Cinnamon leaf oil	3.0
	Bornyl acetate	1.0
	Lemongrass oil	10.0
	Safrol	2.5
	Tincture benzoin	5.0
	Distilled water	10.0
	Denatured alcohol	65.5
(4)	Geranium oil	0.5
	Bergamot oil	0.5
	Lavender oil	1.5
	Rosemary oil	1.0
	Bornyl acetate	1.5
	Pine oil	25.0
	Isopropyl alcohol	70.0
(5)	Lavender oil	60.0 cc.
	Bergamot oil	30.0 cc.
	Peppermint oil	5.0 dr.
	Clove oil	30.0 dr.
	Benzoic acid	1.8 gr.
	Alcohol to make	300.0 cc.

In this last formulation, the benzoic acid is dissolved in the alcohol and the volatile oils are added.

The manufacture of alcohol type deodorant sprays is, of course, restricted at present because of the shortage of alcohols of all types. Where alcohol is still available for such uses, however, stocks can be extended by diluting without any great detriment to the properties of the final product.

SPRAYS containing formaldehyde have formed the third common type of deodorant sprays. These are composed of perfume oils, formalin (40 per cent solution of formaldehyde), water, an emulsifier, and sometimes a quantity of alcohol. The perfume oils are available either with or without emulsifier. Where the perfume oils have been prepared in emulsifiable form, it is necessary only to add them to water with a quantity of formalin, and add coloring if desired, to produce a finished theatre spray.

Usual proportions are three ounces of perfume oils, and three ounces of formalin to a gallon of water, to form a milky emulsion. Stability of the emulsion depends, naturally, on the emulsifier used, but products are available which give permanent emulsions.

During the present shortage of formaldehyde, manufacturers have had to reduce sharply the amount of formalin they put into their formulations, or eliminate it entirely, mostly the latter. Actually, such a relatively small quantity of formaldehyde goes into these products that manufacturers of sprays holding any substantial stock of formaldehyde before restrictions went into effect have not yet been seriously affected.

The formaldehyde type spray finds its use in the same manner as the sprays previously described,—in theatres, smoking rooms, restaurants, drinking establishments, and other places where people congregate. Formaldehyde sprays are said to be particularly useful for killing odors in sick rooms or in hospitals for dispelling odors associated with certain kinds of diseases. When used by hospitals, the proportion of formalin is ordinarily stepped up to 5 or 6 per cent. There is, of course, no question of a scarcity of formaldehyde in any product for hospital use, where high priority ratings solve the manufacturer's problem.

Formaldehyde is valuable in these products because of its gaseous nature, and its ability to suppress odors arising from the decomposition of organic matter. As formalin containing sprays are atomized, the formaldehyde is released in gaseous form which enables it to react upon odors already present in the air. At the same time, the perfume oils cover up the irritating odor of the formaldehyde. The formaldehyde, of course, cannot have any effect on the source of the odors, nor can antiseptic or disinfectant properties be claimed for this type product on the package label.

As indicated previously no one has yet come forward with a tested substitute for formaldehyde for use in deodorant sprays. Among the replacements suggested are certain of the phenylated phenols, which are available in water-soluble form, and which are said to possess deodorizing properties. One of the "Dowicides," developed within the past month, is said to be suitable for use in theatre sprays. Unfortunately, however, the present emergency finds spray manufacturers with even the preliminary testing of possible replacement materials still to be done.

Phenol coefficient has no significance in the compounding of theatre sprays, for these products do not claim to be, and *should not claim* to be disinfectants. The actual killing of microorganisms, under the best conditions, takes place only after more or less prolonged contact with a disinfectant. Obviously then, a spray could not accomplish true disinfection. Hence, in the labeling of theatre sprays, care should be exercised that no extravagant claims are made. Phrases such as "disinfects," "purifies the air," "eliminates odors," "removes odors" or similar claims should be avoided, while phrases such as "recommended for use in theatres, institutions, homes" or "for freshening the air" etc., are probably modest enough for the Federal Trade Commission.

During the past few years, even before any scarcity of formaldehyde, there has developed a school of thought in deodorant spray manufacture which holds that formaldehyde is not necessary in these sprays. The point is made that although formaldehyde is gaseous and also effective in suppressing certain bad odors, it is likewise irritating to the eyes and mucous membranes of many people, even when used in minute quantities. The advocates of no-formaldehyde state that the same deodorizing effect can be obtained with various combinations of perfuming materials, especially certain synthetics which have in themselves a high antiseptic value and ability to cover odors. For example, where products like eucalyptol, isobornyl acetate, methyl salicylate, geraniol, thymol, and some others are used, they are held to be just as effective without added formaldehyde as they are with it in the spray. They also maintain that where ethyl alcohol makes up part of a formula, it is also useful in "freshening" the air in a manner for which formaldehyde has always been given sole credit as an ingredient of a spray.

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PYRETHRUM vs. ROACHES

By Dr. F. L. Campbell

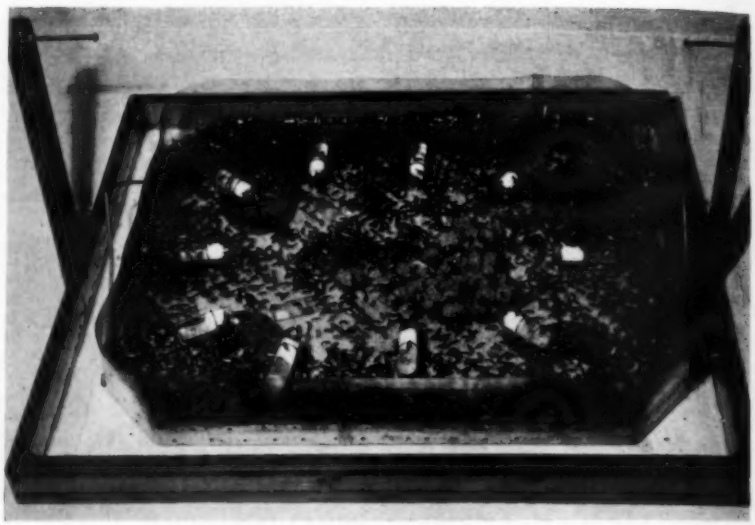
OHIO STATE UNIVERSITY

THE following review was written in preparation for research[1] on the effect of pyrethrum[2] on the locomotor activity of roaches. It is concerned with the action of pyrethrum on roaches, the evaluation of pyrethrum against roaches, and the use of pyrethrum for roach control.

Action of Pyrethrum on Roaches

Fumigation—

Shafer (1911, 1915) was the first to make a thorough study of the lethal action of insecticides. On roaches he recognized the peculiar stomach and contact action of sodium fluoride, the explanation that is accepted today, but he misinterpreted the action of pyrethrum. He wrote (p. 51, 1915) "In the case of pyrethrum powder, attention was called to the fact that, as applied in most cases, the principal influence of this insecticide is due to the volatile bodies held in the powder. This is very clear when the insect is confind in a warm air-space with some of the powder." In other words, Shafer thought that pyrethrum acted as a fumigant. As the active principles of pyrethrum were then unknown, it is not surprising that Shafer was misled. Evidently he did not take the precaution to keep the air space free of air-floating particles of the powder. After it became known that the pyrethrins are the only active substances in pyrethrum and that they are liquids of low volatility, it seemed less likely that pyrethrum could act as a fumigant. Using honeybees as a sensitive test insect, Ginsburg (1930) carefully excluded particles of pyrethrum powder and droplets of pyrethrum extract from the test chamber and admitted only air that had passed through powder and extract. As the bees were not affected, we have direct evidence that pyrethrum probably does not act as a fumigant. Therefore it must act as a contact or stomach insecticide, the former being much more important than the latter.



Most important prerequisite to roach testing on a large scale is an adequate stock of test insects. The "Maternity Ward" at Ohio State's Testing laboratory provides specimens in ample numbers.

Contact action—

To act as a contact insecticide pyrethrum must be brought in contact with the cuticle of the insect in order to exert its characteristic effects. The contact effect of pyrethrum is the same for all insects, differing among different species only in intensity and time of appearance and duration of the steps leading to death or recovery. According to Klinger (1936) these stages are as follows: (1) latent period, (2) period of excitation, (3) period of convulsions, (4) period of paralysis, (5) death. With sublethal doses some insects can reach the stage of paralysis, yet recover completely.

Excitation, convulsion and paralysis indicate that pyrethrum acts directly on the nervous system. Excellent evidence that this is true has been obtained by histological study of ganglia of normal insects compared with ganglia of insects affected by pyrethrum and by other insecticides. Krüger (1931) on mosquito larvae, Wilcoxon and Hartzell (1933) on mealworms, Hartzell (1934) on grasshoppers, Klinger (1936) on caterpillars, and Wigglesworth (1941) on a blood-sucking bug have all shown that pyrethrum produces profound histological changes in the ganglia of these insects,—lesions that are characteristic of its effect. Moreover, it has been found by Buchmann (1929) on housefly larvae, O'Kane *et al.* (1933) on roaches, and Klinger (1936) on sphinx caterpillars that the duration of the latent period depends on the location of the application of a minute quantity of pyrethrum on the surface of the body. The nearer the point of ap-

[1] A cooperative project of the Ohio State University Research Foundation with the Kenya Farmers Association through the Kenya Pyrethrum Extension Service of New York.

[2] In this review "pyrethrum" refers to solid or liquid insecticidal products made from *Pyrethrum cinerariaefolium* and containing pyrethrin I and pyrethrin II (pyrethrins). To avoid confusion the names of the active ingredients are used only where "pyrethrum" will not suffice.

plication of the dose to the larger ganglia of the insect, the quicker will be its response.

Careful studies of the contact effect of pyrethrum on roaches have been made by O'Kane (1933) with a petroleum ether extract and by Hockenyos (1936) with pyrethrum powder.

Using a petroleum ether extract containing 15 per cent pyrethrins, O'Kane *et al.* placed minute droplets weighing from 0.05 to 0.1 mg. at various points on the surface of the bodies of the oriental, American and German roaches, both nymphs and adults. The roaches were provided with collars to prevent them from cleaning off droplets placed on the appendages. The time elapsed from the placing of the droplet to the onset of convulsions was determined and was used as a measure of the permeability of the cuticle at the point of application and as a measure of the relation of response to distance of point of application from the central nervous system.

Convulsions followed the application of the droplet to every point on the surface of the body, except the tip of the long antenna. Placed on the distal end of other appendages (legs, stylets or cerci) convulsions followed. A droplet placed on the middle of an antenna led to convulsions. If, however, the antenna was amputated below the point of application when the first effects appeared, the onset of convulsions was prevented. This demonstrated the time factor in the spread of pyrethrins from the point of application to the central nervous system.

In general the tests showed that sensitivity to pyrethrum varies, depending on the location of the application on the surface of the body and on the sclerotization of the cuticle at the point of application. Sclerotized areas were less sensitive than membranous areas. For areas having the same type of cuticle, the response to treatment was faster the nearer the area was to ganglia of the central nervous system.

Hockenyos (1936), working with oriental roaches and a pyrethrum powder of unknown pyrethrin content, performed dusting experiments that supplement the results of O'Kane *et al.* Whole roaches were dusted "heavily" (in a manner not described) with pyrethrum powder and with a series of mixtures of this powder and talc. Speed of action was determined by noting time to onset of excitation, convulsions, and paralysis. As would be expected, the straight pyrethrum powder acted most rapidly and the 10:90 mixture least rapidly. However, the 25:75 mixture appeared to act faster than the 50:50 mixture. If not due to chance, this may indicate a difference in adherence of the two mixtures to the bodies of the insects. It was interesting to note that the latent period (1.4 to 1.9 minutes) was about the same for straight pyrethrum and all the mixtures with talc. The difference in effect of the four powders appeared in duration of the period of excitation (from 3 min. with 100:0 to 17 min. with 10:90) and in the duration of the period of convulsions (from 7 min. with 100:0 to 18 min. with 10:90). Data on the period of paralysis are not given, though it is shown that after 9 to 11 hours, recovery among insects dusted with the mixtures was greater than among those dusted with straight pyrethrum.

The foregoing experiments indicate to the writer that the speed of toxic action depends on the quantity of pyrethrum applied. It is amazing that pyrethrins in particles of pyrethrum, within two minutes after contacting the cuticle, can produce an exciting effect on the roach. The quantity of pyrethrins required to excite the nervous system must be inconceivably small. In view of the fact that the cuticle of roaches is covered by a delicate, waxy epicuticle and a film of oil (Ramsay, 1935), we can picture the rapid penetration of pyrethrins from the powder by imagining that they go into solution in the outermost oily-waxy layer and penetrate the cuticle through the pore and gland canals, thus reaching the nerve endings in the epidermis.

In addition to dusting whole roaches, Hockenyos applied pyrethrum powder to parts of the surface of the body with a camel's hair brush. These tests, too numerous and varied to be described here, indicated "that with the particular sample of pyrethrum used, an area of one-half or more of the body surface must be covered with dust to insure the insects being paralyzed for at least 12 hours." The dusting of the appendages alone was not sufficient to paralyze the roaches. As O'Kane *et al.* could paralyze roaches by a minute drop of pyrethrum extract placed on almost any point of the appendage, the difference in effect of powder and extract is brought out. The latter was undoubtedly more effective because the pyrethrins were more concentrated and being in an oil solution were available for penetration immediately on contact with the cuticle.

The work of O'Kane *et al.* and Hockenyos also show that neither the liquid nor the dust need enter the tracheal system to paralyze the insects; direct penetration of the cuticle by pyrethrins suffices.

While more than one insecticide will paralyze roaches, pyrethrum is unique in the extreme excitation that it causes before paralysis sets in. By the so-called lard can method Barnhart (Campbell *et al.* 1941) sprayed large nymphs of the German roach in a standard place of concealment. Various oil-base insecticides were used, including the Official (pyrethrum) Test Insecticide of the National Association of Insecticide and Disinfectant Manufacturers (O.T.I.). The writers state, "In all tests driveout by the O.T.I. was remarkably uniform and always exceeded the driveout caused by insecticides that did not contain pyrethrins." The driving out of roaches from cracks in which they are concealed is undoubtedly a result of the effect of pyrethrum on locomotor activity. Running wildly, the sprayed or dusted roaches find by chance the exits from their hiding places and many emerge from them before they are seized with convulsions. This effect is useful in practice for locating roach infestations and for causing roaches to run into powder deposits or into a direct spray or dust.

The initial effect of pyrethrum on the nervous system of the German roach has another action that aids in control,—a phenomenon first pointed out by Woodbury (1938) and studied carefully by Parker and Campbell (1940). All adult female German

roaches that receive an effective dose of a pyrethrum spray drop their egg capsules prematurely. Although some of these capsules may hatch later, the per cent hatch is less than that which would have occurred, if the capsules had remained attached to the female. Dropped capsules lose water and shrink. The younger the eggs in these capsules, the more likely it is that the embryos in them will fail to mature and hatch. The dropping of the capsules is brought about through the nervous system by contraction of the abdomen. Pyrethrum is the only insecticide known to the writer that has this curious and useful effect.

Paralysis of roaches, as well as of houseflies and other insects, may be caused by sublethal doses of pyrethrum from which the insects may recover completely. In practice therefore, opportunity to collect and destroy paralyzed insects should not be overlooked, but it is better to make thorough treatments, thus insuring the ultimate death of insects that are hit by spray or dust. Whereas houseflies sprayed with pyrethrum-oil either die or recover within 24 hours, Woodbury (1938) found that roaches may linger in a moribund condition. Those that are moribund after 24 hours do not recover.

Stomach action—

We may now ask whether pyrethrum does or can act as a stomach insecticide. In practice it is unlikely that pyrethrum acts as a stomach insecticide, because an insect must come in contact with it before it can eat or drink it. The rapid contact effects would probably prevent the insect from ingesting a lethal dose. Moreover, the rapid loss of toxicity of pyrethrum deposits would prevent the lasting protective effect characteristic of stomach insecticides.

Whether pyrethrum can act as a stomach insecticide in specially designed laboratory experiments is another question of academic rather than practical interest. The evidence at hand says yes and no.

The first experiments having a bearing on this question were made by Saling (1928) on the American roach. Looking for a method for biological evaluation of pyrethrum, he decided to feed measured quantities of pyrethrum extracts to roaches. He found that a mineral oil (Paraffinum liquideum D. A.B.) was imbided by roaches when applied to their mouthparts by a calibrated capillary pipette (like a baby drinking from a bottle) and that the ingested oil produced no ill effects. He found further that this oil was suitable at 100° C. for complete extraction of pyrethrins from pyrethrum powder and that the roaches would imbibe the extract with fatal results. The same was true of houseflies. Two years later Buchmann (1930) made similar experiments, injecting oil extracts of pyrethrum into the oral cavity of the American roach and the giant roach, *Blabera fusca*. Both lethal and sublethal doses were introduced into the alimentary tract in this way, with the usual chain of events following the treatment.

RECOVERY OF HOUSEFLIES

The effect of temperature on the ability of sprayed flies to recover after applications of insecticide has been investigated recently by Craig Eagleson. Temperature was found to exert less influence on the recovery of houseflies sprayed with "Lethane" than with pyrethrum insecticides. A complete report of this study will appear in our June issue.

Since O'Kane *et al.* (1933) showed that roaches can be killed by placing minute quantities of a pyrethrum concentrate on the mouthparts, the lethal effects of oral administration by Saling might be attributed to the contact of the extract with the external cuticle of the mouthparts. However, if Buchmann injected the extract into the pharynx, he may have avoided all external contact of the extract with the cuticle, and if he did not injure the intima of the gut in making the injection, one must conclude that the stomach action of pyrethrum has been demonstrated,—at least for pyrethrum-oil in roaches.

Bottcher (1938) also claims to have demonstrated stomach action of pyrethrum in a liquid. He fed alcoholic extracts of pyrethrum in sugar solution quantitatively to individual honeybees with fatal results. He concluded that pyrethrum is a very powerful stomach insecticide. However, the possibility of external contact effect on the mouthparts was not excluded. Moreover, he did not give results of feeding the alcoholic medium without pyrethrum, leaving open the possibility that the medium itself might have been toxic.

In spite of the doubts just expressed, the evidence is fairly strong that pyrethrum in solution in oil or dispersed in water may act as a stomach insecticide. Pyrethrum powder, however, has not been found to act as a stomach insecticide. Investigating this question, Swingle (1934) imbedded the powder in a thin gelatin film and fed the film between leaf disks to imported cabbage worms, in this way avoiding its contact action. The insects were not affected by eating either gelatin or pyrethrum-gelatin films. On the other hand, these larvae were killed by contact action of pyrethrum when they crawled on the surface of these same films. Pyrethrum between leaf disks without gelatin was also consumed by the larvae without effect. These experiments led to more extensive work by Woke (1939) on the same question, using the southern armyworm, which also eats with impunity leaf sandwiches containing pyrethrum. By using a sensitive biological test for pyrethrum in the gut contents, tissues, and excrement of the southern armyworm, Woke demonstrated that the pyrethrins ingested are destroyed in the gut before they can exert their characteristic effects.

Voskresenskaya (1938), influenced by Swingle's work, also used the leaf sandwich method to feed pyrethrum powder to three species of caterpillars and to the migratory grasshopper. After consuming the sandwich, all insects regurgitated and became paralyzed,—effects not observed in the work of Swingle and of Woke. Whether the dose taken by the Russian insects was larger or external contact by the insects with the powder was less carefully avoided is not known. At any rate all paralyzed insects recovered and resumed feeding the day after eating

the sandwiches. Voskresenskaya concluded that pyrethrum cannot be regarded as an effective stomach insecticide.

With a camel's hair brush Hockenyos (1936) thoroughly dusted the antennae or legs of oriental roaches with pyrethrum powder. As the contact effect was not sufficient to paralyze them, the roaches cleaned their appendages in their mouthparts, thus ingesting the powder. Two successive treatments of the antennae did not cause the roaches to ingest enough powder to affect them. Perhaps pyrethrum powder is inactivated in the gut of oriental roaches as it is in the gut of the southern armyworm.

Relative susceptibility—

Different species of insects and different instars or stages of the same species may differ greatly in their susceptibility to the action of pyrethrum. Klinger (1936) has made a remarkably thorough study of the factors governing relative susceptibility and found that it depends in large part on the size of the insect and thickness and density of its cuticle.

No quantitative tests have yet been made to determine the relative susceptibility of different species of roaches or of the susceptibility of roaches in comparison with that of other household insect pests. Passerini (1924) tested a pyrethrum powder against a large number of species of insects and other arthropods. He classified them in four categories of susceptibility and placed roaches in the most susceptible group. Abbatucci and Roubaud (1926) testing a pyrethrum-oil spray against German and oriental roaches and other household insects, concluded that roaches were more resistant than lice, fleas, mosquitoes, houseflies and blowflies. Preliminary results in the writer's laboratory indicate that roaches are among the more resistant of the household insect pests and that the firebrat is most susceptible.

Regarding relative susceptibility of different instars of nymphs or larvae, it is probably generally true that resistance increases with age, presumably because the cuticle becomes thicker as the insect grows older and because volume of the body increases faster than surface. Certainly the tests made in the writer's laboratory indicate that resistance of the German roach to pyrethrum increases from first to sixth instar. It might be supposed that the adult roach having wings and being larger than the sixth instar nymph would be still more resistant, but steam vaporizer tests in a Peet-Grady chamber in the writer's laboratory against a mixed group of German roaches of different ages showed that any survivors after the treatment were always large nymphs, the adults and smaller nymphs having been killed. Recent careful tests by McGovran and Fales (1941) indicate that large nymphs stand in resistance between adult males and adult females, the latter being most resistant. No doubt the position of large nymphs with respect to adults would depend on age of the latter. Using a pyrethrum-oil spray, Tuma (1938) made an exhaustive study of the relation of age to susceptibility in the German roach. He found that roaches reared at 85° F. were most resistant at 17 weeks of age. He did not mention the stage of the insects at this age, but they should have been adult according to our experience. If so, our observations do not agree with Tuma's. We are agreed, however, that at some point in the life of a German roach it reaches a peak of resistance to pyrethrum.

Although Tuma must have worked with adults as well as the nymphal instars, he did not consider the relative susceptibility of the sexes to pyrethrum. Nelson *et al.* (1934) implied that a difference in susceptibility existed because they recommended sexing the adults used in their drop test. In quantitative comparisons, using the O.T.I., Woodbury (1938) has shown that adult female German roaches are decidedly more resistant than adult males,—the same situation that exists in houseflies. In terms of spray deposit required to kill 50 per cent of the insects, he found that the relative resistance of adult females, adult males and second instar nymphs was 4.5 : 2.5 : 1.

Because the adult female German roach carries her egg capsule (ootheca) until it hatches, it is of interest to know the relative susceptibility to pyrethrum of the female and the eggs within the ootheca. Using the O.T.I. and a stronger pyrethrum spray, Parker and Campbell (1940) showed that eggs in the ootheca are more resistant to the spray than are the females, particularly at doses that give a high kill of females.

WHAT information is lacking in the foregoing review that could be supplied by research with existing methods?

We are not sure that pyrethrum has no fumigating effect against roaches. For a drastic test one could take an oleoresin of pyrethrum from which the solvent had been completely evaporated and confine roaches near it at a high temperature in a small closed space. An oleoresin from field daisies might be used as a check.

It is possible to get much more information on the physiological effects of pyrethrum on roaches. For example, the activating effect of pyrethrum can not only be timed but can be recorded by kymograph as suggested by Yeager and Swain (1934). The effect of pyrethrum on the action of the isolated heart of roaches can be studied by the mechanographic method used for nicotine by Yeager (1938). Effect on circulation of blood can be studied by the use of suitable injected indicators. Effect on movements of the spiracles can be studied as suggested by Wigglesworth (1941). Incidentally, Wigglesworth suspected that death of insects paralyzed by pyrethrum might be caused by opening of the spiracles and resulting desiccation, but determinations of water loss from paralyzed *Rhodnius* and observations of the spiracles of paralyzed bedbugs failed to show that this hypothesis was true; moreover death could not be attributed to starvation. "The cause of death . . . therefore remains obscure."

The effect of pyrethrum on gas exchange of roaches can easily be studied, as well as its effect on directed circulation of air through the tracheal system (cf. Kitchel and Hoskins, 1935). Because oxidation of pyrethrins destroys their toxicity, it would be

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PART II

VARIOUS devices have been developed for studying the olfactory responses of different insects. One of the earliest was devised by Barrows[1] (1907) for *Drosophila ampelophila*, the pomace fly. As the flies passed along a closed trough they were met by and reacted to an odor issuing from a trap bottle. The more elaborate device of McIndoo[19] (1926) for potato beetles (*Leptinotarsa decimlineata*) involved a Y-shaped glass tube, one side serving as the control. Other olfactometers were developed by Ripley and Hepburn[30] (1926) for the Natal fruit fly (*Pterandus rosa*), by Folsom (1931)[10] for the cotton boll weevil (*Anthonomus grandis*), by McIndoo[21] (1933) for comparing blowfly repellents, by Hoskins and Craig[15] (1931) for studying the olfactory responses of blow-flies (*Lucilia sericata*) and by Eyer[9] and his associates (1937) for codling moth attractants.

The value of the olfactometer as a more scientific approach to the study of chemical substances for attracting or repelling insects is illustrated by the work of various investigators with reference to the codling moth (*Cydia pomonella*). The common technique employed by the investigator was simply to add compounds to a stock solution of bait and rate their attractiveness to codling moths by the relative number of moths collected at the baits. Because such procedure gives no clues as to the actual basic attractant in the mixture, Eyer and his associates of the New Mexico Station first subjected the compounds under investigation to laboratory tests for their relative effectiveness and then tested them in an olfactometer especially designed for the codling moth. The apparatus consisted of eight radiating arms leading into a large round central chamber. A fan located at the bottom of the chamber caused air to circulate through the arms which were screened at their outer ends. The compounds to be tested were floated on water in quart jars by small vials set in corks, each jar being attached to the underside of the end of each arm.

Hoskins and Craig[15] have discussed several requirements for an ideal insect olfactometer:

(1) "The environment should be as nearly normal as possible."

(2) "A large fraction of the individuals tested should respond."

(3) "The results should be attributable only to the chemical stimulus being studied."

(4) "Results should be obtainable within a short time."

(5) "Results should be obtainable with either a homogeneous or heterogeneous population."

These few examples illustrate that many of our common pests are attracted by odors, natural or synthetic, as the case may be and that, when used in combination with traps or combined with poisons, odors can be used to control such pests along with standard spray treatment.

Before discussing attractants and repellents, we should first define the terms. The comments of Campbell[4] are of interest on this point: "Many entomologists, including the writer, define 'repellent' as a substance that prevents an insect from feeding or ovipositing upon its host, without otherwise injuring the insect. Repellent action in this sense can be detected only when the insect is offered a choice between a treated and untreated host. When the insect is confined with the treated host only and does not feed, its subsequent death may be attributed either to insecticidal action by contact or fumigation, or to starvation, and repellent action is thereby obscured. When insects do feed on the treated host and consume sublethal doses, they may be so affected that they are forced to leave the treated host. The writer would prefer to call this response a deterrent effect rather than a repellent effect, because the insect is not driven away until it is poisoned. Deterrent action also can be detected only when the insect is given an opportunity to leave the treated host and go to an untreated host."

As long ago as 1899 pine tar oil was recognized as a repellent for flies on livestock and up to recent years many of the proprietary cattle sprays involved solutions of pine tar oil in a petroleum oil base. Since these sprays tend to impart odors to milk and to render sprayed animals unsightly, they have been largely replaced by materials which, while having a more pleasant odor, are more efficacious in repelling flies for moderate lengths of time.

The emphasis upon heavy oil sprays effective for repelling flies

from cattle when grazing in the pasture appears to be slowly turning to sprays designed to repel flies from cows during the milking period. This is based upon published experiments indicating that heavy oils are more injurious to cattle and are more responsible for decreases in milk production than are the flies. On the other hand, sprays designed for temporarily repelling flies from cows in the barn do not increase milk production as is commonly believed, based on experiments conducted at the Kansas Experiment Station. The chief value of repellents would appear to be to quiet the cows when they are being milked.

Nevertheless, in spite of the different expressed opinions of entomologists and dairymen on the relationship of flies to milk production, the gallonage of fly repellents is steadily increasing. Likewise, there is an increasing number of new synthetic repellents being developed by commercial laboratories, some of which appear to be quite promising. Among these are the thiocyanate compounds and phenoxychloroethyl ether. In addition to repellency, these newer synthetic materials have high toxic properties, hence finished sprays are effective either as killers or as repellents. According to Shaw, these "double-action" fly sprays appear to be most acceptable. An interesting development along these lines is the utilization of rotenoids or rotenoid derivatives in cattle sprays. The insects, on walking over the hairs of sprayed animals, suffer an unpleasant sensation in their feet and legs so that the insects are repelled immediately. Shortly thereafter a leg paralysis occurs from which the insect never recovers and consequently dies.

In contrast to oil-base cattle sprays, certain manufacturers have developed formulae for emulsification with water. A dilution of one part concentrate to 15 parts of water is commonly recommended. From the data at hand, it would appear that such sprays, properly compounded by the manufacturer, and correctly diluted and applied by the farmer, may give satisfactory results. To what an extent farmers will turn from oil base sprays to those of the water-base type remains to be seen.

THE control of such pests as mosquitoes, chiggers, and other blood-sucking Diptera is an ever-increasing problem. In many sections of the country chiggers and mosquitoes have been factors limiting out-of-door activities to a remarkable extent. It goes without saying that liquid sprays have established uses for the control of these pests but there are obvious objections to atomizing liquids on parts of the body exposed to insects. Insecticides in the form of lotions or creams carrying a substance repugnant to the insects in question are of widespread interest. Progress is being made in the study of the repellent value of a wide range of chemicals. Of the more recent investigations, MacNay, after a study of the comparative value of many repellents against Aedes species in Canada reported essences of thyme, geranium to be promising but inferior to a mineral oil extract of pyrethrum. Other chemicals, such as cinnamic aldehyde and cresol, were of some value but had injurious effects upon the skin. More extended researches on mosquito repellents were conducted by Philip Grannett, of Rutgers University, who studied nearly 1,000 organic and inorganic mixtures in addition to some 50 proprietary products. Most satisfactory of all materials tested was a product consisting of diethyl glycol monobutyl ether.

Oils of citronella, sassafras and camphor and dihydropyrone are repellent to flies and mosquitoes and many proprietary lotions or creams involve at least one of these essential oils. Recently a manufacturer has produced wax candles impregnated with oil of citronella which, when burned, slowly yield the fumes of the oil. They are claimed to be of value in repelling mosquitoes and similar insects from large areas. Houseflies (*Musca domestica*) are repelled by certain fatty acid derivatives according to Ralston and Barrett.[28] Undecylonitrile, lauronitrile, tridecylonitrile, and docecyl alcohol were more repellent than citronella oil.

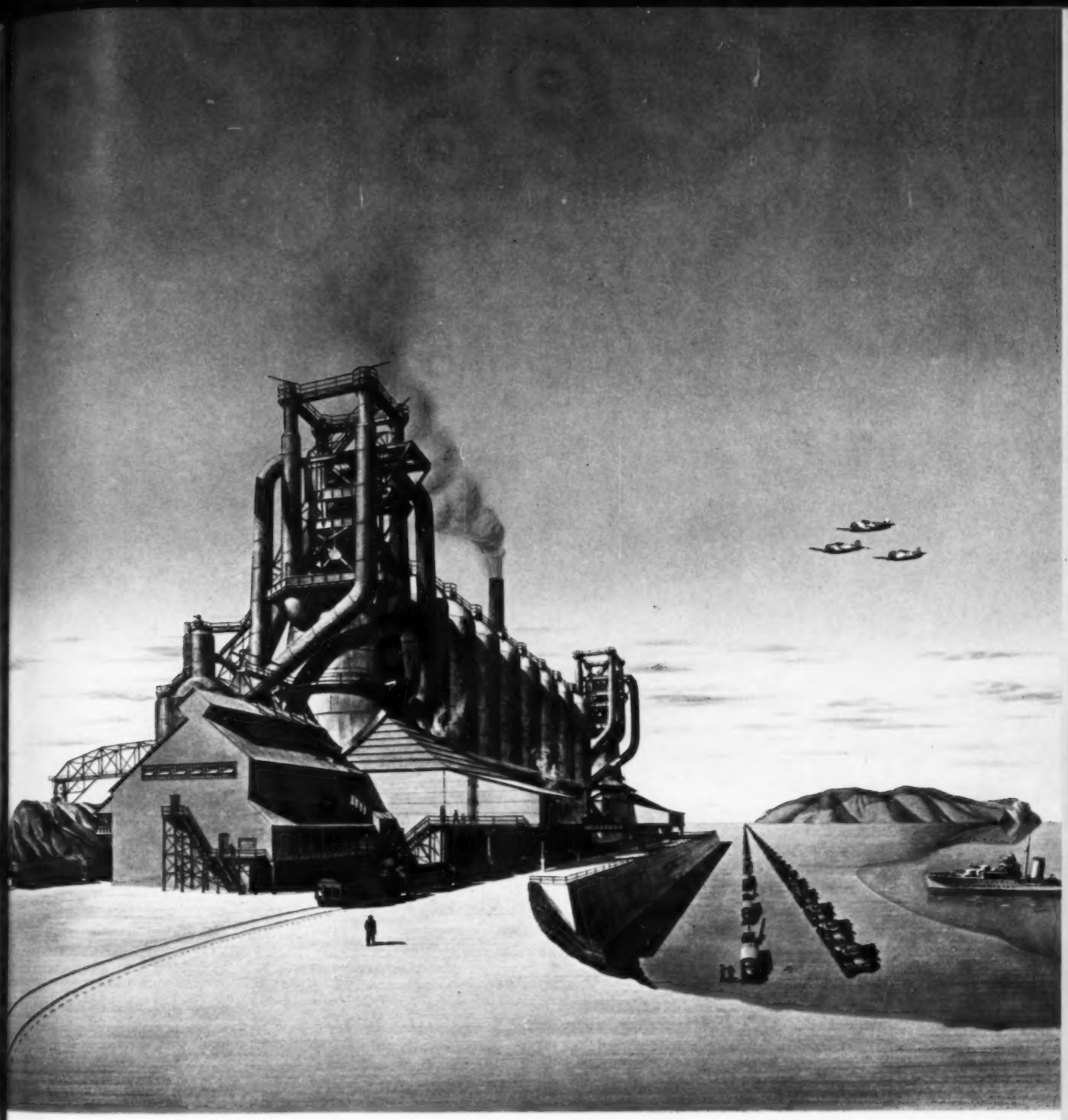
For many years entomologists have experimented with chemicals to repel blow flies from wounds of livestock and thus prevent infestation of the screw worm. The most recent recommendations consist essentially of the application of a mixture of benzol and diphenylamine to the sores for destroying the screw worm larvae and at the same time to prevent further infestation by repelling the adults. Olive oil, cottonseed oil and oleic acid were found repellent to the sheep maggot fly (*Lucilia sericata*) for approximately two weeks by Hobson.[14]

In the field of plant insect control, deterrents and repellents have been commonly used. The control of the Melon fly (*Dacus curcurbitae Coq.*) on curcurbits in Hawaii by stomach poisons alone is not entirely successful[17]. Stomach poisons reduce the fly population, but due to the migration of sexually mature females into treated areas, the population rapidly increases before the flies obtain a toxic dose of the poison, hence the desirability of added protection by repellent or deterrent sprays.

The Japanese Beetle (*Papillia japonica Newm.*) is effectively repelled from foliage treated with sprays containing derris,[26] hydrated lime and aluminum sulfate[24] and certain organic compounds, notably phenothiazine and tetramethyl thiuram monosulfide.[12] The latter material, one of the thiuram sulfides, was also effectively repellent to the Colorado potato beetle, Mexican bean beetle and the Eastern tent caterpillar.[12] Arsenate of lead, although highly toxic to Japanese beetles, was early found to be repellent to these insects, explained by O'Kane as "probably due to the discomfort caused by the irritating character of the first minute amounts of poison eaten."[25]

That certain inert materials such as slaked lime, chalk and flour are repellent to certain insects was proven by Van Leeuwen[33] for the Japanese beetle and by McDaniel for the potato leafhopper.[18]

(*Turn to Page* 105)



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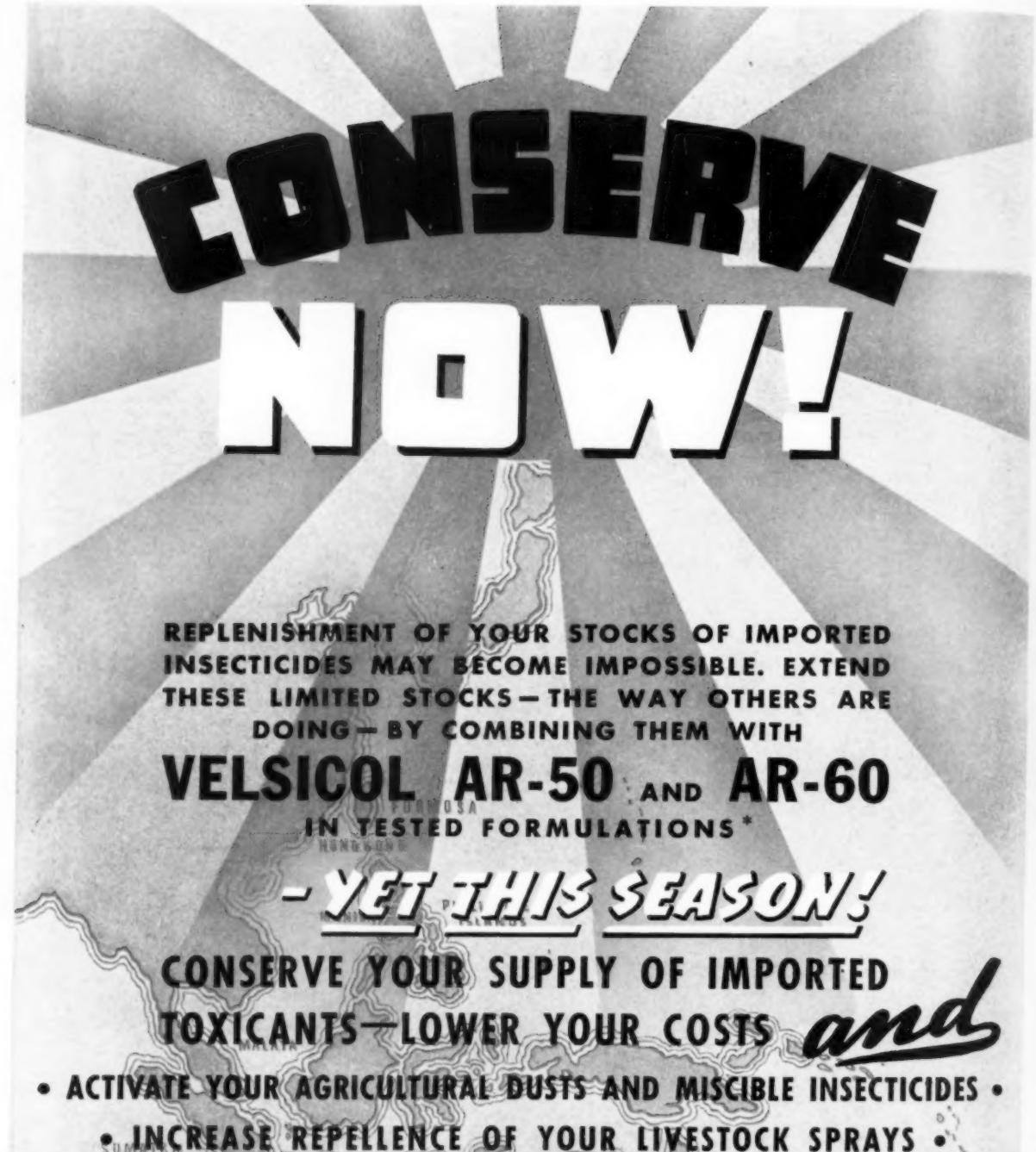

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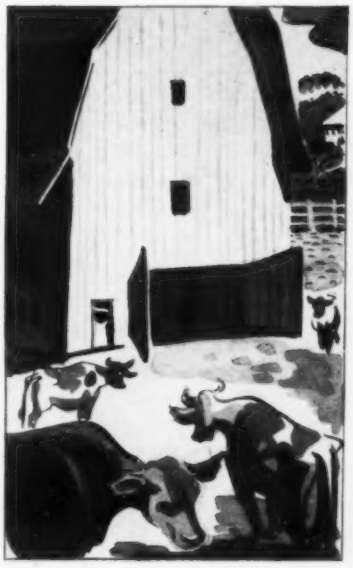
ALL-PURPOSE INSECT SPRAY

Some considerations in favor of a single type fly spray for home, institutional, and stock spray purposes

By Dr. E. M. SEARLS
University of Wisconsin



AT present, three types of oil base insect sprays are generally recognized,—cattle fly, crawling insect, and household fly sprays. Because of this multiplicity of somewhat similar materials, purchasers for large concerns and institutions, as well as for dairy farms, and homes, often find it difficult to decide just which spray or sprays will best suit their purposes. Some think it necessary to purchase all three, leading to many possibilities of confusion. Very frequently the person who actually applies the spray is not trained for the purpose, or even interested, and there are reliable reports of instances where an odoriferous, heavy bodied cattle spray was used in a dining room with unpleasant results. Conversely the author has seen high priced concentrate for crawling insects used undiluted to kill flies in an outbuilding.

A single all-purpose spray would serve to avoid such difficulties. The present article is prepared for the purpose of considering the arguments in favor of a single all-purpose spray, and to help purchasers of fly spray decide which spray or sprays to buy.

Characteristics of the three general types of sprays

Cattle fly sprays

Cattle fly sprays, or as they are also termed, stock sprays, may be divided into light or heavy depending upon the viscosity of the base oil and the purpose for which they are intended. Heavy cattle fly sprays are normally formulated with the basic purpose of keeping cattle free from flies while in the pasture. The oil base of these sprays is usually of from 50-90 seconds Saybolt viscosity. These high viscosity and normally less volatile oils are selected for use to prolong the activity of the repellents on the cows. When the protecting oil evaporates too quickly, the repellents soon dissipate or become ineffective. Such sprays are intended merely to form a fly repelling film over the coats of the animals. Various materials have been used as repellents, some having strong and unpleasant odors. It appears that, in some cases, these odors alone have been depended upon to repel the flies. Incidentally, some of these sprays have not contained a sufficient amount of actual insecticide to kill flies, unless the flies were well wet with the spray.

Light cattle fly sprays have differed from the heavy type chiefly in the viscosity of the base oil. In general, the same types of repellents have been used. These sprays, like the heavy cattle fly sprays have, for the most part, been lower priced than household fly sprays. They have not generally been

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recommended for use in the home because they are too heavy.

Crawling Insect Sprays

Crawling insect sprays are formulated with the primary purpose of controlling cockroaches, silverfish, bedbugs and other insects with similar hiding habits. These insects either have no wings or do not fly readily. They hide in cracks, folds, crevices and other similar places where they are hard to reach with a killing spray. For this reason stronger sprays, usually referred to as a crawling or hiding insect sprays, are sometimes used for their control in institutions, hospitals, hotels, barracks, etc., but seldom in the home.

Until the adoption of the official grading method for killing sprays by comparison with the O.T.I., fly spray buyers had no reliable way of determining the effectiveness of products they bought, with the result that price, and claims made by the sellers, were the common criteria for selecting a spray. As compared with the usual household fly spray, crawling insect sprays require a higher percentage of insecticidal materials and therefore, cost more. Their cost has made their use, except in extreme cases, rather limited. The oil used in these sprays has normally been of the distillation range of kerosene.

Household Fly Sprays

Household fly sprays are intermediate between the light base cattle fly sprays and many of the crawling insect sprays in their killing power. The oil base of these sprays is in the distillation range of kerosene and, for some time, has been of the odorless type, in by far the greater volume of insecticides. The killing power of household fly sprays in the past has varied widely. Some brands contained small amounts of toxics, and merely stunned flies hit by the spray, while others were more effective and killed them. By far the greater majority of the oil sprays sold have been of the household fly spray type.

Use and Limitations of the Various Sprays

Cattle Fly Type

Cattle fly sprays are not generally recommended for use in homes. The heavy, comparatively non-volatile oils used in these sprays render them unadaptable to household use because of the danger of leaving oily residues to collect dust and to stain walls, curtains, furniture, etc., for a long time after application. The use of this type of spray in the kitchen, milk room, laundry, clothes closets, or in wards of institutions would not be satisfactory. This is also true of the light cattle fly sprays although the danger of offensive oily residues is much less.

There are certain physical characteristics of the high viscosity oils which make them difficult to use in many sprayers. Most readily available hand and motor driven atomizers are constructed and adjusted for use with low viscosity oils. When high viscosity oils are used in these machines, the tendency is to disperse the spray into such a fine mist that, for ordinary purposes, the spray is not effective. Our own studies (1, 2) have indicated that droplets of less than 17 microns diameter seldom struck the object toward which they were sprayed.

The usual hand-operated atomizer will deliver about 1 cc. of 60 viscosity oil at each stroke of the handle. The writer's experience has been that the usual operator ordinarily applies only from 3 to 5 strokes of an atomizer on each side of a cow. At that rate only from 6-10 cc. are sprayed at a cow whereas 30 cc. (about 1 oz.) of spray is the least amount usually recommended. I have seldom seen heavy oil base sprays effectively applied.

There is, on the other hand, a certain amount of danger associated with the thorough application of heavy oil sprays. Since they are less volatile than light oil sprays, they remain upon the animals longer when effectively applied. They are, in fact, used because of that particular property. A slight residue remaining each day could build up a sufficient amount to saturate the hair of the animals and eventually reach the hides. A coating of heavy oil, particularly an oil with a low unsulfonatable residue, over the hide of an animal might produce disastrous results. Regan and Freeborn (3) found that serious results followed when cows were heavily sprayed with oil.

Some scaly hide resulted when cows in one of the dairy herds at the University of Wisconsin were sprayed with a cattle fly spray containing a base of 40-45 seconds Saybolt viscosity. The oil was evenly applied by means of an electric sprayer equipped with a nozzle which could be adjusted for the effective application of oils of a wide range of viscosities. Twenty cubic centimeters of spray were applied to one side of each animal every week day on alternate weeks.

Cattle fly sprays of the high viscosity base type are designed primarily to protect cows from the attack of biting flies while in the pasture. There is some question as to the necessity for such protection, particularly in most areas of the northern states unless populations of biting flies occur far in excess of any we have observed in this vicinity. During five years of experimenting with fly sprays on dairy cattle, over 14,000 counts of flies were made in pastures near Madison, Wisconsin. It seldom happened that we found over 20 stable flies or 60 horn flies upon one cow at one time. Regan and Freeborn (3) demonstrated that; under the conditions of their experiments, 140,000 house flies placed in screened stalls with two cows produced a constant decline of milk production of 3.13 per cent. In a similar area, 71,000 stable flies confined where they could feed freely upon the cows, reduced the milk production only 1.4 per cent. The number of flies found on dairy cows in the pastures near Madison seems very small indeed compared with those numbers.

There are areas in the United States, however, where biting flies occur in much larger numbers. It is probable that in some instances cows are seriously attacked. Under these conditions, use of a high-grade cattle fly spray containing an adequate amount of actual repellent and with a highly refined oil base would certainly seem to be indicated. These areas are not common, however. In most sections of the country where relatively few flies are found, it is questionable if, considering the danger of direct injury to the

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animals by the spray, the use of heavy bodied cattle fly sprays is justified.

Many agriculturists are quite persuaded that protecting sprays are necessary, however. Most people, who work about domestic animals, have suffered from the bites of stable flies, and it would appear that the necessity for the protecting fly sprays has its origin largely in the personal experience of the dairymen and not in the comfort or health of the animals.

Even apart from the considerations of well being of man and beast, of course, there is ample justification in many instances for use of fly sprays in the cattle barns and on the cattle. House flies are notable as carriers of disease and contamination. Their destruction in the milk room and in the stables, makes it easier to produce clean milk.

Stable flies often follow the cows into the barns at milking time. Their bites, sometimes cause the cows to switch and kick. Horn flies also cause the cows some uneasiness. As a result there is some danger of injury to the milker and his equipment. This can, to a very large extent, be avoided by the use of an effective fly-killing spray. Properly compounded cattle fly sprays of the light oil type are useful for this purpose. These sprays are easily applied by the usual hand-operated atomizer, since the base oil is usually within the kerosene range.

Because of the more volatile oil base used in these sprays, their effectiveness is short lived and, therefore, they are not recommended for the prolonged protection of cows in the pastures. Sprays of this type which do not contain sufficient toxics to kill flies are not particularly useful. The use of highly odoriferous sprays about milk and milking equipment is not recommended.

Crawling Insect Sprays

Crawling insect sprays have not been used as commonly as cattle or household fly sprays because of their higher cost. Their use has been restricted to the destruction of hiding insects in hospitals and institutions, where the inaccessibility and, in some cases, greater resistance, of these insects justified the use of more potent and more expensive sprays. Because of their necessarily higher cost, however, crawling insect sprays have not been extensively used.

Household Fly Sprays

Since it is becoming a more common practice to place the O.T.I. rating (Bureau of Standards Specification CS 72-38.) upon the containers, and with the more general use of highly refined oil bases, the usual household type fly spray has assumed a new significance. The usual buyer may easily recognize a superior spray by its rating. AA is the highest rating recognized by the Bureau of Standards and the N.A.I.D.M. and sprays bearing that rating may be expected to conform to the high standards set for that rating. When carefully applied, most AA grade sprays are quite effective against hiding or crawling insects. In short, most AA grade sprays may be depended upon to kill nearly all of the insect pests of the household and institution, as well as those of the dairy and dairy barns.

The trend in insecticide perfuming in recent years, incidentally, has been away from the overpowering odors dictated a few years back by the necessity of masking the objectionable odor of ordinary kerosene. Substitution of odorless bases has made it possible to turn to more delicate, higher type perfumes. Other strong odors, used as repellents, have been discarded to a large extent in household sprays. A market has also developed for so-called odorless sprays.

Odorless type AA grade sprays made with highly refined, low viscosity oil bases, have extended the range of usefulness of household fly sprays. Such sprays may be used in most food processing plants without danger of contamination by odor or oily residues. They are effective for a short time in protecting humans from mosquitoes and other biting flies. They may be freely used about the homes, in wards in institutions, and are effective in and about the dairy. These sprays, easily applied by most well constructed atomizers, will kill all flies which follow the cows into the barn. A thorough spraying of the cow stables, after the cows are brought in, is quite effective in destroying the flies hit, including those on the cows. When highly refined and readily volatile oils are used, the danger of injury to the animals is greatly reduced. Well-made sprays do not stain or corrode metals or fabrics.

Summary

In view of the foregoing considerations, it appears that an odorless type AA grade spray, made with a highly refined oil base within the distillation range of kerosene may be considered an all-purpose fly spray under average conditions. (Not every spray coming under this description is suitable for agricultural purposes. It is not the purpose of this article to consider agricultural sprays.) Such a spray may be used under all conditions where an oil base spray may be used at all. It is sufficiently potent to kill hiding insects as well as flies. It is readily applied by most properly working atomizers. It will kill the flies present upon dairy animals, and keep them free from flies during the average milking period. When sprayed upon the clothing and exposed skin of hunters, fishermen, picnickers, and other out-of-doors people, it will repel mosquitoes and other biting flies for short periods.

The use of such a spray in an institution or on a farm, would avoid the confusion and waste which might occur when all three types of sprays, and sprayers to match, are available to untrained users. Such a spray is reasonably close in price to the usual cattle fly spray, and is much cheaper than most concentrates usually made for crawling insects. The danger of injury when applied to dairy animals is much reduced.

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(*From Page 93*)

interesting to study the effect of the atmosphere surrounding roaches on their response to pyrethrum.

The effect of other environmental factors on the toxicity of pyrethrum to roaches needs investigation. What of temperature, relative humidity and light? Since light tends to destroy pyrethrins, would insects exposed to light after paralysis have a greater tendency to recover than those placed in the dark at the same temperature and relative humidity?

Still other aspects of toxicity that can be measured by per cent mortality or by the time period for certain toxic effects to appear or disappear remain to be studied. Dosage-effect and concentration-effect curves should be worked out both for lethal and sublethal doses. Subsequent effects, if any, of sublethal doses on development and reproduction of roaches should be studied, including effects of repeated sublethal doses on the same insects. The question of the effect of sublethal doses on the resistance of roaches to subsequent higher doses (cf. McGovran *et al.* 1939) is worth answering.

Much work remains to be done on relative susceptibility to pyrethrum, not only between species of roaches and between roaches and other household insects, but within a species of roach. One question that has not been studied at all is the change in susceptibility during a stadium or instar. What is the relative susceptibility of roaches just before and just after a molt, and in the middle of a stadium?

The determination of the relative toxicity of pyrethrin I and pyrethrin II to roaches awaits a sufficient supply of reasonably pure materials. In the course of their chemical work on pyrethrins, Staudinger and Ruzicka (1924) made tests on the German roach. Without going into details they stated that pyrethrin I is somewhat more toxic to this insect than pyrethrin II. At a dilution of 1:10,000, pyrethrin I killed in 10 to 20 minutes and pyrethrin II in 20 to 40 minutes. Against the American roach McGovran and Mayer (1941) found that pyrethrin I gave a higher kill than pyrethrin II at certain concentrations, but that pyrethrin II gave a quicker knockdown than pyrethrin I and paralyzed more roaches than the latter. The samples tested were not pure, but were rich in I or II (85 per cent I plus 15 per cent II and 95 per cent II plus 5 per cent I).

In most of the work suggested above, it would, of course, be of interest to study not only the effect of pyrethrum, but also the comparative effects of other insecticides alone and in mixture with pyrethrum. The action of mixtures of insecticides is a complicated but important subject that has so far received little quantitative study that is fit for interpretation.

(*To Be Concluded*)

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*The writer is grateful to Mabel Colcord and Carlo Zeimet of the Library of the Bureau of Entomology and Plant Quarantine, U. S. Dept. Agr., for providing translations from these papers.

Attractants and Repellents

(*From Page 96*)

Investigations on the control of flies attacking beet and cauliflower crops in France indicate the value of emulsions of pyridine, naphthalene or creosote for repelling the flies to prevent oviposition.

In the United States recommendations for the control of the carrot rust fly (*Psila rosae Fab.*) include the use of naphthalene flakes[11] for repelling the flies as well as killing the newly-hatched larvae by contact.

Bordeaux mixture (copper sulfate-lime-water) has long been used as a repellent for flea beetles, cucumber beetles, slugs and snails and certain other pests. There is evidence that Bordeaux mixture is not only repellent but toxic as well to the potato leafhopper, at least the earlier stages. Whitewashes containing zinc sulfate and blood albumen are also repellent to this insect. Bark beetles can be repelled from logs by borax according to Wallace.[34]

An important fact in the utilization of repellents as well as attractants is that substances having a vile odor to human beings are not always repellent to insects. What may be a very pleasing substance to the human nose may have surprising repelling properties to insects. There are also modern repellent materials that go into livestock sprays as against the odoriferous materials that were commonly used in proprietary cattle sprays.

Chemical Constitution

ENTOMOLOGISTS and chemists have long sought to find relationships between the chemical constitution and physical properties of organic compounds and their toxicity to insects. Owing to the specificity of such compounds to certain insects, and the difficulty of predicting how different insects will react to a given compound, the problem is exceedingly difficult, although some progress is being made in its solution.

Similar efforts to relate chemical constitution with attractancy or repellency for different insects has likewise been attended with difficulties. Efforts to find a relation between repellent action of compounds and chemical constitution and volatility with reference to the screw-worm fly by Parman and his associates[27] in 1927 were largely disappointing. These investigators could find "no clear difference in the repellent action of the aliphatic and aromatic compounds, nor in that of the various classes of compounds, such as aldehydes, phenols, etc." The question of volatility was studied but there was no correspondence among the compounds tested. Obviously, as the authors point out, a very low boiling point would be too volatile for practical repellency. Cook (1936), on the other hand, observed a relation between the optimum attractive concentration of a compound to volatility on the basis of the number of flies caught. Investigation by Eyer and his associates at the New Mexico Station will undoubtedly throw additional light on this interesting problem.

Conclusion

The problem of curtailing insect pests is one of growing importance. Insect pests are on the increase and new destructive species are cropping up continually in different sections of the country. Their control is essentially based upon the employment of chemical compounds. There is a growing need for new synthetic insecticides and greater quantities than ever before. The present trends in this direction are encouraging. Thousands of chemical compounds have been studied in the laboratory and in the field. New materials of outstanding insecticidal properties are being developed. The successful development of certain proprietary synthetic compounds has justly stimulated research in the field of insecticides. Unfortunately, due to the difficulties involved in relating chemical constitution to insecticidal activity, much of this research must be conducted by trial and error.

Although the outright destruction of insect pests appears to be the more potent, positive form of control, the value of preventive methods is becoming increasingly recognized. These include the use of chemicals for repelling insects from crops or animals and for attracting insects to traps or to poisons. Further development of these supplementary methods of control may be expected in the future stimulated by war time emphasis on maximum food production.

(*Bibliography accompanied May installment*)

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NEWS...

Lieutenant Krebs to Air Corps

Second Lieutenant Walter O. Krebs was recently transferred to Kelly Field, Texas to take the pilot's training course. Lieutenant Krebs, a graduate of the University of Illinois, entered the army February 16, 1941, and until the time of his transfer had been in the infantry. Prior to entering the army, he was with American Standard Mfg. Co., Chicago, manufacturers of wax applicators and mops.

Breuer Assists Booster Output

Lieut. Grant W. Breuer, former executive head of Breuer Electric Manufacturing Co., Chicago, now connected with the Chicago ordnance department, was recently mentioned in newspaper reports for his work in aiding the placing of orders for 7 million bomb boosters in the district.

Hile Addresses Farm Chemurgic

James R. Hile, assistant manager of the insecticide department of Acme White Lead & Color Works, Detroit, represented the Agricultural Insecticide and Fungicide Association at a recent meeting of the National Farm Chemurgic Council in Chicago. Mr. Hile reviewed the supply situation on arsenic, pyrethrum and rotenone, and outlined his organization's activities on legislative, transportation and other matters.

"Rex-Glo"—New Floor Wax

Continental Car-Na-Var Corp., Brazil, Ind., is now offering a new self-polishing water wax emulsion, "Rex-Glo," recently developed in its laboratories. The introduction of plastics in the wax is said to have extended its toughness and durability without making the finish brittle or tacky. According to the company, the new wax is also quite non-slippery and completely waterproof within a few moments after it has dried. It is being offered exclusively to jobbers and distributors for sale under private label.

FRED A. HOYT

Hoyt Honorary NAIDM Member

Fred A. Hoyt, of Atlanta, one of the founders of the National Association of Insecticide andDisinfectant Manufacturers, has just been elected to honorary membership in recognition of his many years of active participation in the affairs of the Association.

New 1942 Test Insecticide

The new 1942 Official Test Insecticide will be available for distribution about May 15th according to an announcement from H. W. Hamilton, secretary of the National Association of Insecticide & Disinfectant Manufacturers. The new O.T.I. will become official for testing and grading all fly-sprays by the Peet-Grady Method, under the specifications of the National Bureau of Standards and the N.A.I.D.M., on and after June 1, 1942. Previous stocks of O.T.I. should not be used after June 1. The O.T.I. with detailed instructions for use in the official Peet-Grady Test may be obtained from the office of the Association, 110 East 42nd St., New York. Cost is $6.00 per dozen bottles, with single six-ounce bottles at $1.00 each. The Official Test Insecticide, which approximates a standard B Grade spray, is made up and distributed by the N.A.I.D.M. each year for comparative fly spray testing. Each year a new batch of O.T.I. approximating the previous year in fly killing potency is put out for use from June 1 to June 1 of the following year.

Fire Damages Soap Plant

A fire at the five-story plant of U. S. Sanitary Specialties Corp., Chicago, April 22nd, resulted in complete destruction of the top two stories. Smoke damage to the rest of the building was also severe, although records were saved. About 50 employees, mostly girls, were out to lunch at the time the blaze started. The cause of the fire was not definitely known.

Lehn & Fink Profits Higher

The earnings of Lehn & Fink Products Corp., Bloomfield, N. J., for the nine months ended March 31, 1942, were recently reported as $555,500, equivalent to $1.38 per share on 400,000 shares of common stock outstanding. This compares with earnings of $501,956, or $1.25 a share, for the nine months ended March 31, 1941.

H. M. Clark's New Son

David Clark is the new son born to Mr. and Mrs. H. M. Clark of Ashland, Ohio on Palm Sunday, March 29. Mr. Clark who is well-known in the insecticide and disinfectant industries, is president of Dr. Hess & Clark, Inc., Ashland, and active in the affairs of the National Association of Insecticide & Disinfectant Manufacturers. According to his father, young David is likely timber to make the race for president in 1988 on a straight Republican ticket.

Don't Be a Bottleneck!

A two-color poster "Don't Be a Bottleneck" is currently being distributed to plants doing war work by the sales staff of the Whiz Industrial Chemicals division of R. M. Hollingshead Corp., Camden, N. J.

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N.A.I.D.M. Program Plans for June 8-9

PROBLEMS of an insecticide and disinfectant industry in a world at war will comprise the greater part of the program at the 28th annual mid-year meeting of the National Association of Insecticide & Disinfectant Manufacturers to be held at the Edgewater Beach Hotel, Chicago, on June 8 and 9, according to an announcement by Ralph O. Cowin of the Standard Oil Co. of Ohio, chairman of the program committee. Disinfectants, sanitary supplies, insecticides, and the role which they are playing in the war effort to aid in maintaining sanitation and protecting the health of workers will come in for wide discussion. Raw materials, their supply, priorities, price ceilings, WPB freezing orders, and the possibilities of substitute materials are scheduled for discussion by several speakers.

Although the program is as yet incomplete, the following speakers and their subjects have been listed: Dr. John E. Dunn, U. S. Public Health Service, "Use of Insecticides and Disinfectants in our War Program"; Miss Ruth Crowley, Woman's Page, *Chicago Sun*, "The Place of Insecticides and Disinfectants in the Home"; George M. Jackson of the Interstate Commerce Commission, "Transportation Under Wartime Conditions." As part of a symposium on raw materials, the following are scheduled: Frank Rapp, Hercules Powder Co., on "Pine Oil"; Dr. Alfred Weed of John Powell & Co., on "Pyrethrum and Rotenone"; J. H. Carpenter of the Koppers Co. on "Coal-tar Raw Materials." On containers, Roger V. Wilson of the Continental Can Co. will speak on the can outlook. J. T. Gossett of Wilson & Bennett Manufacturing Co. on steel pails and drums, and Dr. Julian T. Toulouse of the WPB on bottles and closures. Several other speakers from government departments are scheduled tentatively but not yet announced by the committee.

The meeting in Chicago on June 8 and 9 will comprise morning and afternoon sessions on those two

JOHN N. CURLETT

days preceded by committee meetings and a meeting of the Board of Governors on Sunday, June 7. Group luncheons will be served each of the two days of the meeting. On Tuesday evening, June 9, an informal beefsteak dinner will be held. The cocktail party usually held in advance of these dinners will be eliminated this year, as will a golf tournament, and the usual elaborate floor show will be curtailed, according to H. M. Clark of Dr. Hess & Clark, Inc., chairman of the entertainment committtee. General hotel arrangements are being handled by John Powell of John Powell & Co. John N. Curlett of McCormick & Co., president of the Association, at present on leave from his company with the WPB, will preside at the meeting assisted by Henry Nelson, of Chemical Supply Co., first vice-president.

Discuss Insecticide Specification

The War Production Board is reported to be considering the desirability of adopting a uniform chemical specification for insecticide to be used by all government agencies in checking their insecticide purchases for the duration of the war. Consideration is being given to the adoption of Tentative Specification 311-B of the U. S. Treasury Department for this purpose, the latter specification being a chemical method for the determination of active ingredients.

Deodorant Sprays

(*From Page 89*)

From those with long experience in the compounding and use of deodorant sprays, whether in theatres or elsewhere, a few words of wisdom have come which are timely. The type of odor used in any deodorant spray is important. Inasmuch as many perfume odors are offensive to certain people, care should be exercised in avoiding heavy and too tenacious odors. Light, fleeting perfumes are to be preferred as long as they are sufficient to cover the ordinary run of bad odors encountered in theatres, smoking rooms, etc. Perfumes which have a character ordinarily associated in the public mind with clean and sanitary things, so-called sanitary type odors, are preferred, such as thyme, pine, eucalyptus, or others in this same odor category and within the price range suitable for a theatre spray. Combinations of methyl salicylate, thymol and eucalyptus give a "clean" type odor.

Some manufacturers of deodorant sprays feel that they have in the special odor of their product, which they often treat with somewhat ludicrous secrecy, the last word in spray perfumes. Some of these have been concocted by the manufacturer either out of his head or obtained from some source of questionable ability. Experience in actual sale and use of theatre sprays proves that the most suitable types of perfumes are those made up in whole by the perfuming material supply houses, usually products backed by considerable research and knowledge of the materials. There are many problems involved in the correct compounding of perfumes for deodorant sprays, and there is no doubt but that the perfumers of the supply houses know most about these problems.

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War Adjustments Keynote at Sanitary Supply Meeting

THE National Sanitary Supply Association, at its 20th annual convention in Chicago, April 20 to 22, endorsed a plan for a drive to obtain national recognition of the need for strengthening the country's sanitary bulwarks. Under a resolution, approved after lengthy discussion, the Association's Board of Directors was instructed to work unceasingly until Washington authorities fully recognize the vital importance of sanitation to the national welfare. Meanwhile the sanitary supplymen pledged themselves to full cooperation in the national war effort despite the heavy handicaps under which they, in common with all other industries, now labor.

Keynoting convention deliberations, Marshall L. Magee, association president, declared, that in addition to protecting the health of the armed forces and the rest of the country, the industry has the heavy responsibility of "carrying the banner of sanitation to the far corners of the world." The day of creative selling, Mr. Magee asserted, is not over but just begun. He referred to new outlets for business in defense plants where he said the management is sympathetic to sanitation appeals and declared that the companies which will be in business "tomorrow" are those which evolve constructive ideas for promoting sanitation today.

To enable members to get a clear understanding of priorities regulations, more than half the program time was devoted to these matters. From the War Production Board's Chicago office came Edmund H. Eitel, manager, priorities division, and W. K. Evans, consulting analyst, to explain

M. L. MAGEE
. . . again heads Sanitary Supply Assn.

the agency's setup and outline its operations. In the ensuing "Sanitary Products Clinic" spokesmen for manufacturing groups presented the priorities and supplies situation as it currently affects their lines. Speakers included Thomas Galvin, Armour & Co.; Melvin Fuld, Fuld Bros., Inc.; Fred Hild, Hild Mfg. Co.; Jack Schroeder, Schroeder & Tremayne, Inc.; J. A. Meinhardt, J. A. Meinhardt & Co.; Martin J. Peters, Moore Bros. Co.; Gordon Zuck, Wilson & Bennett Mfg. Co. and others. Rounding out the carefully organized presentation, R. A. Beverley, treasurer, T. F. Washburn Co., Chicago, discussed the need for keeping priority records and explained the various simple and inexpensive forms developed by his company for this purpose.

Helpful suggestions for handling industry problems were numerously offered by various speakers. Dr. R. W. Kingerley, research chemist with Grasselli Chemical Div., E. I. du Pont de Nemours & Co., Cleveland, Ohio, presented a technical exposition of sodium phosphates with special attention to the functions of trisodium pyrophosphates in the detergent field. Philip Morris of R. J. Kittredge & Co., Chicago label printers, advised his hearers to "Keep up the appearance of your package." He cited instances of how re-designed labels had increased sales and asserted that attention now to effective label design might be an important factor contributing to the future stability of individual firms faced with a possible "blackout" of their business.

Discussing "New Disinfectants," Jack Varley of Baird & McGuire, Inc., St. Louis, reported on the development of synthetic phenol disinfectants. While more familiar chemicals are still available, he said, supplies are dwindling and eventually a switch to synthetics will be necessary. The new disinfectants, he predicted, will gain a strong foothold by the end of the year and grow in popularity thereafter. He recommended that sanitary supplymen familiarize themselves with the synthetic phenols, introduce them to their trade and lay the groundwork for future business.

Melvin Fuld of Fuld Bros., Baltimore, who discussed "How the distributor can increase his business with the government," declared there is "no magic formula except hard work." It will come, he said, to the salesman who sells defense plants and governmental agencies on the idea that sanitation is vital both to the public and the armed forces. "Unless this

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association takes steps to establish a representative in Washington," Mr. Fuld continued, "our industry will eventually be forced out of business and sanitation will suffer. Individual concerns might be able to secure some recognition in Washington, but we cannot expect that to happen unless, through organized effort, we let Washington know that our industry exists and sanitation is overwhelmingly important at this time."

J. L. Brenn of Huntington Laboratories, Huntington, Ind., in surveying the outlook for the future, predicted that the war will probably last more than two years but that the next three months will be the most crucial. Of the national production, he figured that only 50 per cent will be available for civilian use. Supplymen, he suggested, should arrange their future operations with these three points in view.

Tuesday evening's banquet speaker was Dr. A. P. Haake, managing director, National Association of Furniture Makers. Ludwig Wilson, head of Ludwig Wilson Co., Chicago, and president of the Chicago Kiwanis Club, was toastmaster. Registration numbered over 250, Secretary Ed Kratsch, reported. More than 100 new members have joined the association during the past year, he stated. Selection of next year's convention city and the date was left for future action by the Board of Directors.

Marshall L. Magee of T. F. Washburn Co., Chicago, was re-elected president of the association for the coming year, and W. B. Gast of P. B. Gast & Sons Co., Grand Rapids, Mich., was chosen as the new vice president. S. J. Bockstanz of Bockstanz Bros. Co., Detroit Mich., was retained as treasurer and Ed. Kratsch, editor of *Sanitation*, Milwaukee, was continued as secretary. The new Board of Directors, in addition to the executive officers, includes the following: Mal Flannagan, Federal Varnish Co., Chicago; J. F. Hohenadel, Illinois Duster & Brush Co., Chicago; Ludwig Wilson, Ludwig Wilson Co., Chicago; Dan Weisberger, Standard Distributing Co., Memphis; Lloyd Matson, Industrial Chemical Labs., Omaha. Jack Varley, Baird & McGuire, St. Louis; Melvin Fuld, Fuld Bros., Baltimore.

Manufacturers who exhibited their products included the following:

Candy & Co., Inc., Chicago, Robert Lockhardt, representative, "Bright Beauty" waxes, furniture polishes, heavy duty cleaners, etc.

R. M. Hollingshead Corp., Camden, N. J., Wm. Plowfield, sales director, "Whiz" sanitary maintenance chemicals. As a souvenir the company distributed a polishing cloth for dry washing automobiles and furniture.

Chemical Mfg. & Distributing Co., Easton, Pa., "Target" brand, soap powders, scouring powders, waxes and other sanitary products.

Hysan Products Co., Chicago. Henry Brownstein, president. Jack Milo, southern sales manager, Birmingham, Ala. Sanitary chemicals, soaps, waxes, etc.

Fuld Bros., Baltimore, Melvin Fuld, Albert Lorch, Morris Skaist. Full line of sanitary specialties, including waxes, polishes, soaps, insecticides, deodorants, dispensers, etc., featuring "Fuldenfense" disinfectant, for army hospitals.

Allen B. Wrisley Distributing Co., Chicago, Roy L. Wilson, manager, oil soap division. Mechanics soap, hand cleaners, liquid scrub soaps, soda soap for car washing.

James Good, Inc., Philadelphia. Disinfectants, soaps, insecticides, polishing waxes, cleaners.

Moore Bros. Co., New York, Martin J. Peters. Soap dispensers.

Continental Car-Na-Var Corp., Brazil, Ind., J. H. Longshore, president, K. B. Cadugan, floor scrubbing machines, vacuum cleaners, "Rex" floor products.

F. H. Lawson Co., Cincinnati, J. R. Stephens, sales manager, Chicago territory. Pails, baskets, metal receptacles.

Armour & Co., Chicago, Thos. Galvin. Soaps.

T. F. Washburn Co., Chicago. Protective coatings, floor seals, floor maintenance materials.

Hercules Powder Co. Rosin dry size.

Davies-Young Soap Co., Dayton, O., H. G. Young, C. G. Eckerman. Liquid soaps, waxes, scrub soaps, bar soaps, blackout paints, potash oil soaps.

Federal Varnish Co., Chicago, floor finishing materials. J. H. Lawson, president, S. L. Rosenheim, advertising manager. Mal Flannagan, vice president and sales manager.

Universal Chemical Corp., Akron, O., Lawrence D. Freiberg, vice president and sales manager. Soaps, waxes, disinfectants, etc.

American Textile Products Co., Cleveland, O., J. H. Lehman, president, Allison S. Lowe, sales manager. "No-Mar" mops and dusters.

J. A. Meinhardt & Co., Chicago. J. A. Meinhardt, president, Sidney H. Jacobson, salesman. Mops, potash soaps, chemical specialties, wax. Introduced a new powder fire extinguisher, for air raid protection.

Schroeder & Tremayne, Inc., St. Louis. Jack Schroeder, W. C. Schroeder. Sponges, chamois cloths. Introduced a new "Handy Maid," wartime sea wool sponge.

Ransom Brush Co., Chicago. Albert Ransom, president, M. A. Peterson. Brushes.

M. & C. Maintenance Co., St. Paul, E. V. Colter, president, C. L. Tyler, secretary. "Multi-Clean" floor and carpet cleaning equipment.

White Mop Wringer Co., Fultonville, N. Y. Mops, wringers, etc.

Greenview Mfg. Co., Chicago, Herman Siemund, president, C. H. Ware.

Illinois Duster & Brush Co., Chicago, represented by J. F. Hohenadel, president, E. J. Malmstrom, sales manager, E. Cooper, St. Louis. M. J. Weise, Cleveland, displaying dusters, brushes, mops, etc.

Detergent Products, Inc., Chicago; Thomas Watson, president, Morton Stearns, Harold Flood. Detergents, liquid toilet soaps, soap powders.

Steiner Sales Co., Chicago, Victor Brenninger, advertising manager, Chas. Catlin, Sales. Paper cabinets, towels, spray guns, windshield cleaner.

Frank C. Cook Co., Denver, Colo. Floor waxes.

Geerpres Wringer, Inc., Muskegon, Mich., Elmer H. Bard, sales manager, mop wringing equipment.

Palmer Products, Inc., Waukesha, Wis. Sanitary products.

ISCO

A RELIABLE SOURCE OF

Caustic Potash

used in the manufacture of

SOAPS AND DETERGENTS

FLAKE • SOLID • GRANULAR • BROKEN
WALNUT—*Containers of various capacities*
LIQUID 45% Solution. *Drums and Tank Cars*

ISCO **CARBONATE OF POTASH**

CALCINED 98/100%	In conveniently handled barrels, 400 lbs. Net.
HYDRATED 83/85%	Protected by double heavy, moisture-proof paper liners.
LIQUID 47/48% SOLUTION	Water white, sparkling clear (Drums and Tank Cars).

ISCO **WAXES and WATER SOLUBLE GUMS**

Including excellent domestic substitutes for products of foreign origin, no longer available.

INNIS, SPEIDEN & COMPANY
Established 1816
117 Liberty Street . . . . . NEW YORK
CHICAGO • CLEVELAND • CINCINNATI
BOSTON • PHILADELPHIA • GLOVERSVILLE, N. Y.

The Chemical Supply Company

Consult us about

COAL TAR DISINFECTANTS
•
PINE OIL DISINFECTANTS
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FLY SPRAYS
•
PHENOL INSECTICIDES
•
ROACH POWDER
•
METAL POLISH
•
FURNITURE POLISH
•
FLOOR WAX
•

And Other Sanitary Specialties. We manufacture a full line for the wholesale trade.

WRITE FOR INFORMATION

MAIN OFFICE and PLANT
2450 CANAL ROAD
CLEVELAND, OHIO

Prohibit Rotenone Use in Household Products

RESTRICTIONS on the use of rotenone in sprays for certain food crops and prohibitions on its uses in household products became effective April 13, with issuance of Conservation Order M-133 by the War Production Board. The government had several months previously requested all suppliers of rotenone bearing materials to stop selling the materials for use in the manufacture of household insecticides or for any civilian purposes other than use as agricultural insecticides. The new order makes the terms of the request mandatory.

"Except as specifically authorized by the Director of Industry Operations, no person," states the order, "shall hereafter use rotenone or any product containing rotenone except for one or more of the following purposes:

"(1) Use by the Army or the Navy as a delousing agent, or the manufacture of any preparation for use by the Army or the Navy;

"(2) Use in the protection of food crops other than cotton, tobacco, cranberries, eggplant, cucurbits, onions, peppers and sweet corn, or the manufacture of any preparation for such use;

"Provided, however, that this order shall not be construed to prevent the use by any person of any product containing rotenone for a purpose other than those uses specifically authorized by this paragraph of this section where such product was manufactured or prepared prior to the effective date of this Order."

Deliveries are also restricted as follows: "No person shall sell or deliver rotenone or any product containing rotenone if he knows or has any reason to believe that it is to be used for a use not permitted by the (above) paragraph."

Since imports of derris from Malaya and the Netherlands East Indies have been cut off, imports of rotenone-bearing roots (cube, timbo, barbasco) from Latin America, normally about half the United States' supply, are expected to increase sharply next year. Meanwhile, shipments of pyrethrum continue to arrive from Africa and are not restricted.

Uses of rotenone in household insecticides are not specifically mentioned in the order, but are prohibited through being omitted from the list of permitted uses.

—— ♦ ——

Staph as Test Organism

The comparative usefulness of *Staphylococcus aureus* as a test organism in methods of testing disinfectants and antiseptics is discussed in an article entitled "Use and Abuse of *Staphylococcus aureus* as a Test Organism" by Charles M. Brewer, appearing in the April issue of the *American Journal of Public Health*. Dr. Brewer is associated with the insecticide division of the Agricultural Marketing Service, U. S. Department of Agriculture. *Staphylococcus aureus*, it is mentioned, is the most generally utilized microorganism for antiseptic tests, and at present the only one with a standardized resistance suitable for this purpose. Yet, states Dr. Brewer, "no single standardized test is sufficient for ascertaining the merits possessed by a substance when used as an antiseptic under practical conditions of use." Its use as the sole test organism for inhibitory antiseptic action and the lack of a "margin of safety" in conjunction with its utilization as a criterion of germicidal efficiency is criticized. Factors affecting determination of phenol coefficient when *Staphylococcus aureus* is used are discussed.

—— ♦ ——

Senoret Begins Ad Campaign

Senoret Chemical Co., St. Louis, recently released the first of a series of advertisements in a newspaper campaign using some 150 papers to push its "Terro Ant Killer."

A.I.F. Assn. Meets in N. Y.

The protection of food and fibre crops from pest destruction during the coming year was the central topic of discussion at the Spring meeting of the Agricultural Insecticide & Fungicide Association, held at the Hotel Biltmore, New York, April 14 and 15.

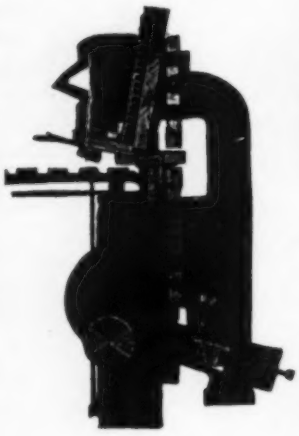
The speakers were Philip H. Groggins, chief of the agricultural chemicals section, Office of Agricultural Defense Relations; Dr. R. C. Roark, in charge of insecticide investigations, U. S. bureau of entomology and plant quarantine; Dr. J. G. Horsfall, chairman of the fungicide subcommittee, American Phytopathological Society; and Dr. J. L. Horsfall, chairman of the insecticide committee, Association of Economic Entomologists. Also attending were T. E. Milliman, in charge of the agricultural chemical section of WPB; Melvin Goldberg, in charge of agricultural insecticide section of WPB; and Dr. M. D. Leonard of the chemical section of OPA. Warren H. Moyer, president of the association, presided.

Mr. Groggins read a short paper prepared by R. H. Alee, of the Latin American division of the Office of Foreign Agricultural Relations, in which it was pointed out that production of rotenone-bearing roots in South America is being encouraged, and indicated that an increased yield could be expected in 1943 in Peru, Brazil, Venezuela and Ecuador.

Mr. Moyer, president of the association, and vice-president of Chipman Chemical Co., Bound Brook, N. J., said that adequate supplies of most insecticides and fungicides are available for crop protection during the coming season, if conservation is practiced.

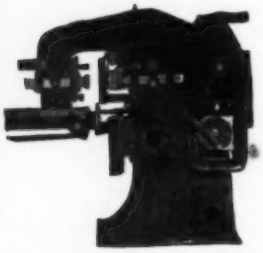
Dr. J. G. Horsfall recommended methods by which plant dosage can be stretched as far as possible without seriously curtailing disease control, while Dr. Roark reported that many organic materials have given promising results as replacements for insecticides and fungicides. Pyrethrum flowers, he stated, may be used in place of rotenone to combat many insects, and of all the inorganic materials, certain compounds of fluorine appear most encouraging.

Special Offerings of SOAP MACHINERY *Completely Rebuilt!*



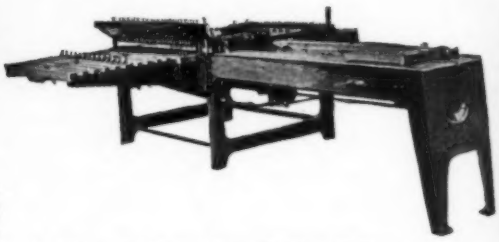
Small size fully automatic Jones toilet soap press. Capacity 150 to 200 small cakes per minute. A real buy at an attractively low price. Has been completely rebuilt in our own shops.

H-A SOAP MILL
This 4-roll granite toilet soap mill is in A-1 shape. Latest and largest size rolls.



4 JONES AUTOMATIC combination laundry and toilet soap presses. All complete and in perfect condition.

Single screw soap plodders with 6, 8, 10 or 12 inch screws. All completely rebuilt and unconditionally guaranteed.



2 Automatic Power Soap Cutting Tables.

INVESTIGATE THESE SPECIAL BARGAINS

•

Johnson Automatic Soap Chip Filling, Weighing and Sealing Machines for 2 lb. and 5 lb. Packages guaranteed in perfect condition.

•

ADDITIONAL REBUILT SOAP MACHINERY

All used equipment rebuilt in our own shops and guaranteed first class condition.

- H-A, 1500, 3000, 4000, 5000 lbs. capacity. Steam Jacketed Crutchers.
- Dopp Steam Jacketed Crutchers, 1000, 1200, 1500 lbs. and 800 gals. capacity.
- Ralston Automatic Soap Presses.
- Scouring Soap Presses.
- Empire State, Dopp & Crosby Foot Presses.
- 2, 3, 4, 5 and 6 roll Granite Toilet Soap Mills.
- H-A 4 and 5 roll Steel Mills.
- H-A Automatic and Hand-Power slabbers.
- Proctor & Schwartz Bar Soap Dryers.
- Blanchard No. 10-A and No. 14 Soap Powder Mills.
- J. H. Day Jaw Soap Crusher.
- H-A 6, 8 and 10 inch Single Screw Plodders.
- Allbright-Nell 10 inch Plodders.
- Filling and Weighing Machine for Flakes, Powders, etc.
- Steel Soap frames, all sizes.
- Steam Jacketed Soap Remelters.
- Automatic Soap Wrapping Machines.
- Glycerin Evaporators, Pumps.
- Sperry Cast Iron Square Filter Presses, 10, 12, 18, 24, 30 and 36 inch.
- Perrin 18 inch Filter Press with Jacketed Plates.
- Gedge-Gray Mixers, 25 to 6000 lbs. capacity, with and without Sifter Tops.
- Day Grinding and Sifting Machinery.
- Schultz-O'Neill Mills.
- Day Pony Mixers.
- Gardiner Sifter and Mixer.
- Proctor & Schwartz large roll Soap Chip Dryers complete.
- Doll Steam Jacketed Soap Crutchers, 1000, 1200 and 1350 lbs. capacity.
- Day Talcum Powder Mixers.
- All types and sizes—Tanks and Kettles.
- Ralston and H-A Automatic Cutting Tables.
- Soap Dies for Foot and Automatic Presses.
- Broughton Soap Powder Mixers.
- Williams Crutcher and Pulverizer.
- National Filling and Weighing Machines.

Send us a list of your surplus equipment—
we buy separate units or complete plants.

NEWMAN TALLOW & SOAP MACHINERY COMPANY

1051 WEST 35th STREET, CHICAGO — Phone Yards 3665-3666

Our Forty Years Soap Experience Can Help Solve Your Problems

CLASSIFIED ADVERTISING

Classified Advertising—All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap*, 254 West 31st St., New York.

Positions Wanted

Chief Chemist. Man with 20 years experience as chief chemist and plant superintendent in the manufacture of shampoos, insecticides, chemical specialties, drug products, etc., desires new position with progressive firm. Specialist in production lines and automatic equipment. Thoroughly familiar in formulation of long list of products. For further details address Box No. 318 care *Soap & Sanitary Chemicals.*

College Graduate: Two years experience drugs, chemicals, essential oils, desires new position in these fields with eastern firm where there is good opportunity. Good record and references. Address Box No. 323, care *Soap & Sanitary Chemicals.*

Soapmaker, practical experience in all kinds of soap, specializing in laundry soaps, desires position. Would start with low salary. Address Box No. 324, care *Soap & Sanitary Chemicals.*

Soapmaker and Chemist with long experience making all kinds of soaps; glycerine recovery, etc. Can take full charge of plant. Address Box No. 321, care *Soap & Sanitary Chemicals.*

Executive, Salesman with mid-town office seeks suitable connection or representation. N. L. Huebsch, 67 West 44th St., N. Y. C. MUrray Hill 3-0386.

Positions Open

Salesmen Wanted: Men wanted in various parts of the country already calling on the sanitary supply trade to carry a side line of waxes, soaps, cleaners, and disinfectants. State qualifications and reply to Address Box No. 320, care *Soap & Sanitary Chemicals.*

Miscellaneous

Cresylic Acid for sale—Inquire William D. Neuberg Company, 420 Lexington Avenue, New York City. Telephone LExington 2-3324.

Liquidating . . .

MACHINERY PURCHASED FROM SEVERAL SOAP PLANTS

ON PACIFIC COAST

4—Ralston Automatic Soap Presses
5—Pkge. Machy. Co. Soap Wrapping Machines, Type N1, adjustable.
2—Crosby Foot Presses.
1—Dunning Soap Amalgamator, 1500#.
1—14" x 8" belt driven Vacuum Pump.

AT OUR NEWARK SHOPS

1—6-knife Soap Chipper, 15".
2—Hersey 1200# Horizontal Unjacketed Crutchers.
1—Houchin-Aiken 1200# Perfection Vertical Soap Crutcher.
1—Houchin 2-way Soap Cutting Table; 1-One-Way.
12—800# Soap Frames.
1—#10A Blanchard Mill.
1—Parablock Foot Press, with sliding die and hopper.
1—Jones Vertical Automatic Soap Press.
1—Sargent 60" x 72" Soap Chill Roll.

Send us your inquiries

CONSOLIDATED PRODUCTS CO., INC.
15-21 PARK ROW — NEW YORK, N. Y.
BArclay 7-0500 — Cable Address: Equipment
We buy your idle Machinery—Send us a list.

Flexibility In Crutcher Performance

The HUBER ELECTRO PERFECTION CRUTCHER offers a choice of four forward and reverse speeds. The flexibility in operating technique afforded by this wide choice of crutcher speeds should be decidedly interesting to many soap makers. Available in three sizes,—1,500, 2,400 and 3,200 pounds.

HUBER MACHINE CO.
"Builders of Good Soap Machinery for the Past 45 Years"
265 46th STREET — BROOKLYN, N. Y.

Peck's OIL SOAPS

NU-CROWN—60-65%
FLO-CROWN—75-80%

CROWN BASE SOAPS are suitable for all types of cleaning maintenance work. Made from refined vegetable oils, American potash and distilled water. Nu-Crown, 60-65% soap, fast and heavy lather, cleans thoroughly, rinses easily. Flo-Crown, 75-80% soap, for making lower percentage soaps only, semi-fluid, easy to handle.

One of a full line of sanitary specialties manufactured by Peck for sanitary specialists.

Peck's PRODUCTS COMPANY
5224-40 NORTH 2nd ST., ST. LOUIS, MO.
NEW YORK . . . . KANSAS CITY

Everything in Soaps, Disinfectants, Waxes, Etc.

Replacement for

SODIUM FLUORIDE

There is no need to let the shortage of sodium fluoride handicap your operations—or its high price raise your costs. Dozens of exterminators are finding "ALVOX" roach powder to be a superior, low-cost replacement material, combining quick and certain kill with safety in use. Compounded from sodium tetraborate, pyrethrum and nicotine, it has been tested extensively in the field over recent months and a volume of repeat orders from the trade attest to its efficiency. Effective also against ants, fleas, beetles, crickets and silverfish. Offered in 100 pound sacks and 375 pound barrels.

ALVOX LABORATORIES
667 Bergen Street **Newark, N. J.**

We announce development of new type soap colors

PYLAKLORS

They have good fastness to alkali, light, tin, ageing.

The following shades are already available:

Bright Green	Dark Brown
Olive Green	Palm Green
Yellow	Golden Brown
True Blue	Violet

It will pay you to send for testing samples.

PYLAM PRODUCTS CO., INC.
Manufacturing Chemists, Importers, Exporters
799 Greenwich St. New York City
Cable Address: "Pylamco"

MIRVALE

CRESYLIC ACID
• • •
HIGH BOILING TAR ACIDS
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NAPHTHALENE
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TAR ACID CREOSOTE OIL
• • •

MIRVALE
CHEMICAL CO. LTD.
MIRFIELD, YORKS.
ENGLAND

Sales Representation Offered. Kentucky firm would represent established firm on sale of items to hotels, restaurants, institutions, etc. Regular representation offered through salesmen well acquainted with territory. Address Box No. 325, care *Soap & Sanitary Chemicals.*

Wanted, by manufacturer, Dopp or similar make, seamless, single shell, direct fired, Cast Iron Kettle, motor driven scraper, and with or without vapor recovery condenser. Address Box No. 326, **care** *Soap & Sanitary Chemicals.*

Wanted: Process for making from fatty acids a powdered soap with a total fatty matter content of between 70 per cent and 75 per cent and with a low water content. Process to be complete in one operation without further drying. Will consider purchasing formula or might temporarily engage services of qualified person. Address Box No. 317, care *Soap & Sanitary Chemicals.*

Rebuilt Guaranteed Machinery: Crutchers, Plodders; Soap Presses, automatic and foot operated; Dryers; 12x30 and 16x40 Three Roll Water Cooled Steel Mills; 2, 3 and 4 Roll Stone Mills; Powder Fillers and Mixers; Chippers; Vert. and Horiz. Mixers; Grinders; Boiling Kettles; Tanks; Cutting Tables; Soap Frames; Filters and Filter Presses, Pumps; etc. Send for Soap Bulletin No. 402. Stein Equipment Corp., 426 Broome St., New York City.

For Sale: 1—Glycerine Evaporator; 1—Day Jumbo Horizontal Crutcher, 700 Gals.; 4—Soap Presses; 3—Cutting Tables, 1200 lbs.; 3—Slabbers, 600 and 1200 lbs.; Soap Powder Mills; Filter Presses, 12" to 36" square; Kettles, 50 to 1000 gals.; Tanks; Pumps; Filling, Labeling and Wrapping Machines; etc. Cash buyers of your surplus equipment. Brill Equipment Corporation, 183 Varick St., New York, N. Y.

Will Purchase Immediately—Pneumatic Packaging Machine, used for chips, powder, cleanser; also dry mixers, chip dryers, crutchers, and automatic soap press. Address Box No. 319, care *Soap & Sanitary Chemicals.*

Floor Brushes—We manufacture a very complete line. Catalogue sent upon request. Flour City Brush Company, Minneapolis, Minn., or Pacific Coast Brush Co., Los Angeles, Calif.

For Sale—Spray Tower complete with Centrifugal spray, generator and dust collector. Suitable for Spray Drying powdered soaps of all kinds. Address Box No. 322 care *Soap & Sanitary Chemicals.*

ATTENTION
MAKERS OF
SELF POLISHING
FLOOR WAX

MANILA GUMS have been adopted on a large scale in your industry effecting large savings.

Write for samples and full information.

WILLIAM H. SCHEEL, INC.
193 Water Street New York, N. Y.

F. & S.
Quality Colors
for
TOILET SOAPS
LIQUID SOAPS
TOILET PREPARATIONS

Long experience enables us to produce colors for all types of soaps.

If you have a shade you want matched send us a sample. We have complete facilities for matching.

Liquid soap colors a specialty—send for samples of F. & S. greens and ambers.

FEZANDIE & SPERRLE, Inc.
205 FULTON STREET
NEW YORK, N. Y.
Import—Manufacture—Export

GREATER *Kills* with CERTOX

REG. U. S. PAT. OFF.

Rodent Seed, Ant Jelly, Arsenic, Carbolic, Pyrethrum, Cresylic, Red Squill, Derris Powder, and other effective chemicals that do a thorough job for the Pest Controller. The quality of CERTOX products remains unaffected by the national emergency. Prices, too, are near normal.

YOUR GUARANTEE:

All CERTOX products are manufactured according to exacting specifications under personal supervision of I. H. LUTTAN, B. S. A., Entomologist.

SPECIAL CONTRACT PRICES
Available to Cover your Annual Needs.

YORK CHEMICAL CO.

Suppliers of Complete Exterminating Chemicals.
424 West 18th Street, New York, N.Y.

"Steamaster"
INSECTICIDE SPRAYER

With steam serving both as an ingredient and as a force, the insecticide itself is held in moist suspension and the attack is made at full strength . . . thus guaranteeing a 100% thorough job of pest extermination. Completely enclosed heating element. Operates from any electric outlet. No fire hazard. Current shuts off automatically when water level drops below the level of the heating element.

A. C. ONLY

Write Today for Complete Details, Prices and Descriptive Literature.

DULA MFG. CO. INC.

351 Atlantic Avenue **Brooklyn, N. Y.**
Manufacturers to the Wholesale Trade Only

"Good" Disinfectants

Pine Oil Disinfectants Coefs. 3 and 4

Phenolic Emulsifying Disinfectants Coefs. 2 to 20

Soluble Cresylic Disinfectant
Coef. 2.5 (B.A.I. Specifications)

Saponated Solution of Cresol
U.S.P. XI (Cresol Compound Solution)

All made under careful laboratory control. Phenol coefficients determined by LaWall and Harrisson Laboratories.

Other "GOOD" Products

Insect Sprays	Vegetable Oil Soaps
Cattle Sprays	Liquid Soaps
Bed Bug Sprays	Scrub Soaps (Liquid & Jelly)
Agricultural Insecticides	Floor Wax and Polishes

BULK PACKAGES AND PRIVATE LABEL

JAMES GOOD, INC.

Manufacturing Chemists—Since 1868
2112 E. SUSQUEHANNA AVE. **PHILA., PA.**

ROTENONE
and
DERRIS RESINS

Manufacturers of finished insecticides have come, over a period of years, to look to DERRIS, INC. as headquarters for rotenone and derris products of all types. We are specialists in this field and are prepared to supply specifically compounded products made up according to each customer's varying needs.

Timbo Powder — Derris Powder
of Finest Grind

DERRIS, Inc.

79 WALL STREET **NEW YORK, N. Y.**

It may take anywhere from five to fifteen years for a new chemical to advance from test tube to tank car—from the laboratory into volume production for commercial use.

Post-war conditions are likely to call for widespread utilization of chemical products that now are still in the test tube stage. Because of this, research at

HOOKER

is being accelerated, laboratory facilities have been modernized and expanded, new chemical developments are "in the works". Now is the time for you to call in HOOKER research men to consult with your chemists so that you may solve today your problems of tomorrow.

HOOKER ELECTROCHEMICAL COMPANY
NIAGARA FALLS, NEW YORK
NEW YORK CITY TACOMA, WASHINGTON

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For Rose Odors

BUTYL PHENYL ACETATE

Excellent in Rose Odors and Floral Odors generally

Has fruity, floral characteristics and is very stable

Economical to use and there is still an ample supply

Aromatics Division
GENERAL DRUG COMPANY
644 Pacific St., Brooklyn, N. Y.
9 S. Clinton St., Chicago 1019 Elliott St., W., Windsor, Ont.

Get more repeat business with these

Quality SOAPS and WAXES

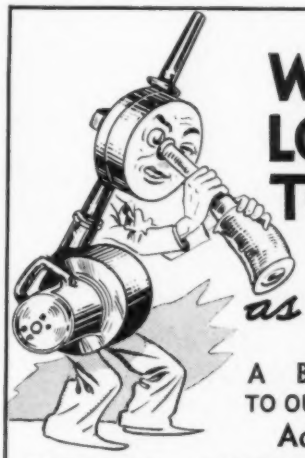
PRIVATE LABELS FURNISHED

PRICED TO MEET COMPETITION

SCRUBPROOF WAXES
WAX-SOAP CONDITIONER
WAX REMOVER
ALKA-LESS EMULSIFIER
(XXX) TRIPLE-HEAVY LIQUID SOAPS
DELUXE OIL SOAP
METAL POLISH
PIPE HYGINIZER

Prompt Delivery—Write for Prices and Samples

UNIVERSAL *Chemical* CORPORATION
176 N. UNION ST. AKRON, OHIO



WE'RE LOOKING, TOO— — —
as hard as you are!

A BRIEF STATEMENT TO OUR CUSTOMERS ABOUT
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* * *

Well, maybe these continuous fast soap processes are better in practice than some of the soap boilers of yesteryear predicted. But the thoughts of soap factories without kettles just don't seem right. Ah, for the quiet and peace of the good old days when progress took its time!

* * *

How and why we may be short of soap before this rumpus is over was told in the April issue of *Fortune*, that monthly magazine of elegance which we always read in the dentist's office while listening to him drill the teeth of the victim just ahead of us. Maybe that's why we gave the article in question a mental "phooey."

* * *

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* * *

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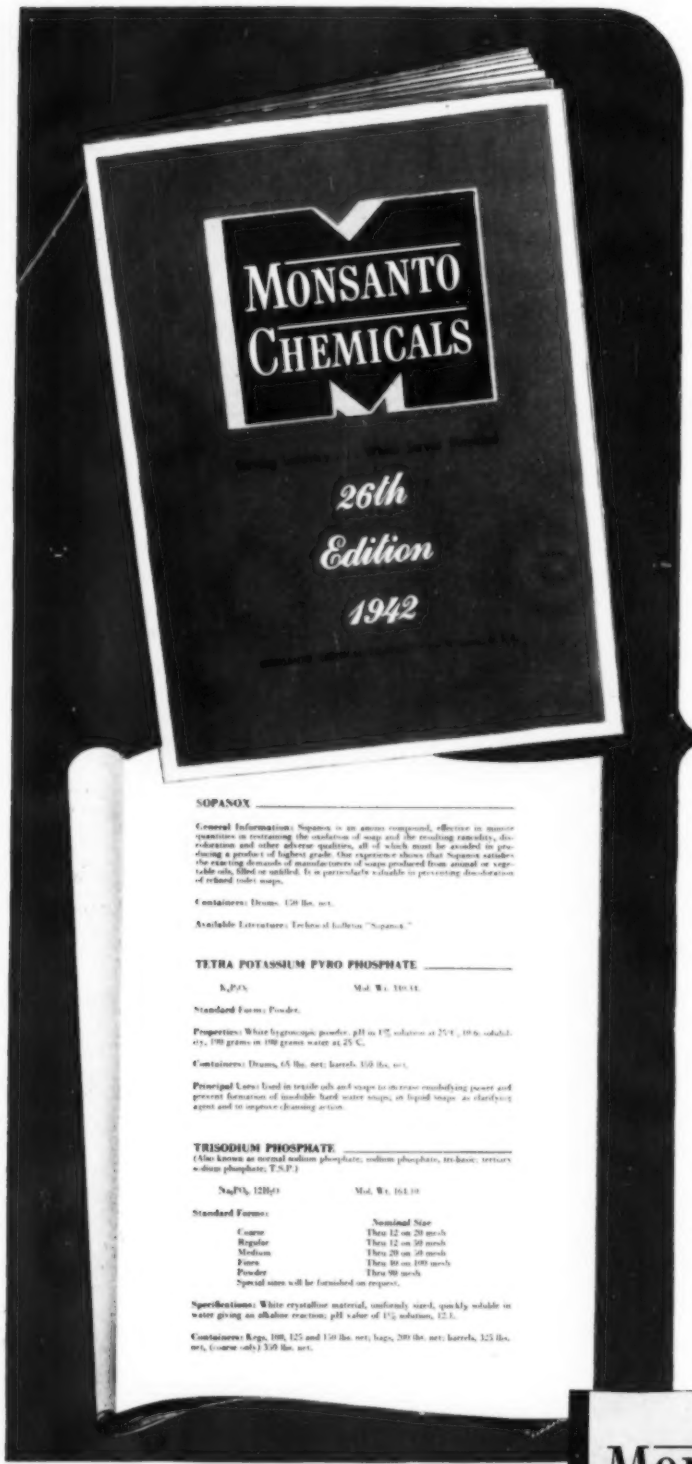

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